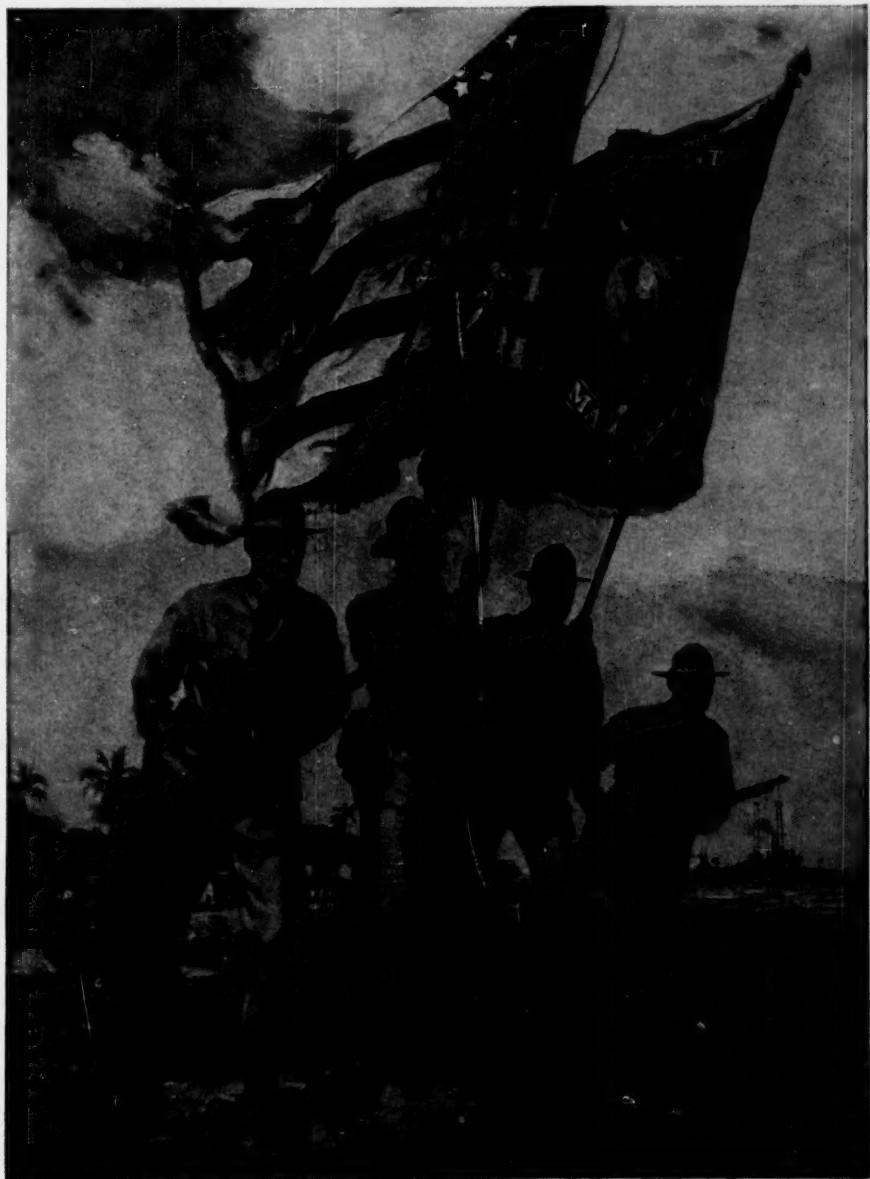


THE MARINE CORPS GAZETTE



**158th ANNIVERSARY
U. S. MARINE CORPS**

VOL. XVIII. NO. 3

NOVEMBER, 1933

"YOUNG MAN," I says,



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"**Y**OU KNOW, Hank, as well as I do, why 75% of the misses are made. Well, sir, last year this young feller had some great chances, but he miss 'em and miss 'em. Then he asks me, 'Pop,' he says, 'what do I do wrong?'

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"Well, sir, this year we went out again. You'd never know it was the same feller. Wham . . . wham . . . how he killed 'em! He thanked me and thanked me. You'd think I gave him a million dollars by telling him about Skeet."

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The Marine Corps Association

ORGANIZED APRIL 25, 1913, AT GUANTANAMO, CUBA

OFFICERS

MAJOR GENERAL BEN H. FULLER, President
BRIGADIER GENERAL GEORGE RICHARDS, Vice-President
BRIGADIER GENERAL DION WILLIAMS, Editor
FIRST LIEUTENANT RICHARD M. CUTTS, JR., Secretary-Treasurer

OBJECT OF ASSOCIATION—"The Association is formed to disseminate knowledge of the military art and science among its members; to provide for the improvement of their professional attainments; to foster the spirit and preserve the traditions of the United States Marine Corps; and to increase the efficiency of its members."—Section 2, Article 1, of the Constitution.

CONDITIONS OF MEMBERSHIP—Active membership open to officers of the United States Marine Corps and Marine Corps Reserve and to former officers of honorable service with annual dues of \$3.00. Associate membership, with annual dues of \$3.00 open to officers of the Army, Navy and Organized Militia and to those in civil life who are interested in the aims of the Association. Honorary members shall be elected by unanimous vote of the Executive Committee.

Associate membership, with annual dues of \$2.00, including yearly subscription to THE MARINE CORPS GAZETTE, open to enlisted men of the Marine Corps.

CONTRIBUTIONS—The GAZETTE desires articles on any subject of interest to the Marine Corps. Articles accepted will be paid for at the GAZETTE'S authorized rates. Non-members of the Association as well as members may submit articles. In accepting articles for publication, the GAZETTE reserves the right to revise or rearrange articles where necessary.

All communications for the Marine Corps Association and THE MARINE CORPS GAZETTE should be addressed to the Secretary-Treasurer, Marine Corps Association, Headquarters, U. S. Marine Corps, Washington, and checks made payable to the same.

The Marine Corps Gazette

WASHINGTON, D. C.

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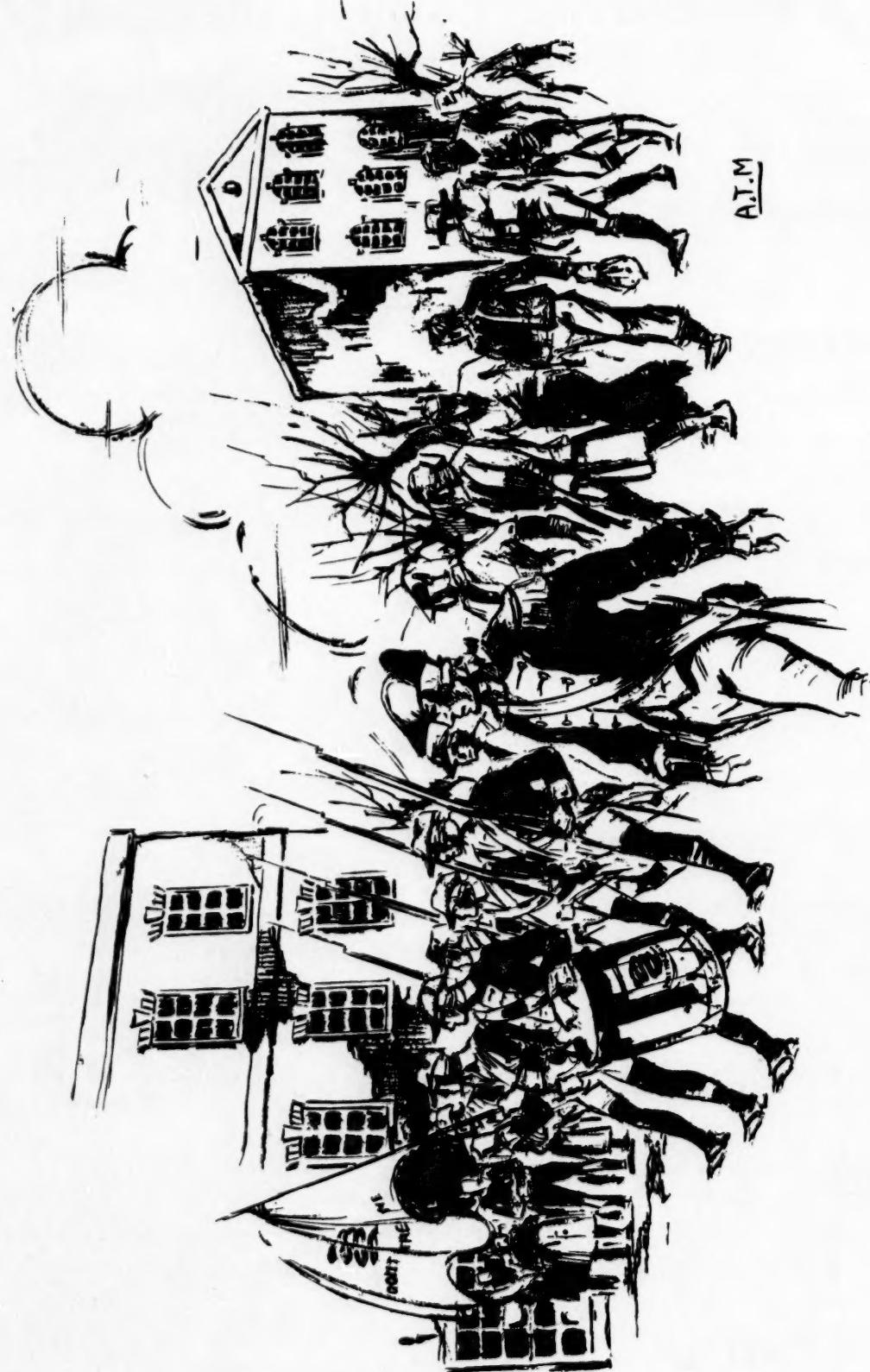
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DRUMMING UP RECRUITS FOR CAPTAIN SAMUEL NICHOLAS' FIRST AMERICAN MARINES, NOVEMBER, 1775

THE MARINE CORPS GAZETTE

Vol. XVIII

NOVEMBER, 1933

No. 3

Samuel Nicholas First Officer of American Marines

BY MAJOR LOUIS ESTELL FAGAN, 2D, U.S.M.C.

■ Herewith is presented the information I have discovered regarding Samuel Nicholas, Philadelphia, who founded the Marine Corps which has honorably endured through one hundred and fifty-seven years.

* * * * *

The MARINE CORPS GAZETTE of December, 1925, reproduced a portrait of Major Nicholas, and mentioned that his commission, dated November 28, 1775, was in existence and possessed by a descendant, Mr. C. Mitchell, of Glen Ridge, N. J. The article states, "We know very little of Major Nicholas' life before the Revolution. He was a Philadelphian, but we do not know the date of his birth, or any other details concerning his private life." There then follows a very interesting account of his recruiting services, his duty on the *Alfred* at New Providence, and with the Army at the battles of Trenton and Princeton, his subsequent duty in Philadelphia as a sort of Commandant of Marines and as Muster Master for the Navy until the end of the war. In 1781 Major Nicholas wrote to Congress requesting duty on the *America*, a 74-gun ship being fitted out, but she was given to France as partial payment of a debt.

"At the close of the war, Major Nicholas drops almost out of sight. Apparently he continued to live in Philadelphia, since his immediate descendants are buried there. His wife was a Miss Jenkins, and he left two sons, Samuel, Jr., and Charles Jenkins Nicholas. He was a member of the Patriotic Association of Philadelphia and a charter member of the Pennsylvania Society of Cincinnati. He is said to have died when comparatively

young, but his burial place is not known. On May 12, 1919, the destroyer *Nicholas* was named in his honor."

Collum's "History of the United States Marine Corps," 1890, consistently spells his name as Samuel Nichols.

The Leatherneck of November, 1927, also reproduced a pen sketch, evidently copied from the GAZETTE portrait at a slightly different angle, of Major Samuel Nicholas, and deals in a very interesting manner with further data concerning his naval career. It adds the information that he served on the standing committee of the "Pennsylvania Society of Cincinnati" from 1785 to 1788. "It is strange indeed that such a heroic and capable figure faded quickly from view. It is the general belief among American historians that he died while comparatively a young man. Unfortunately, Marine Corps officials have never succeeded in finding any record of the death or burial place of the First Marine Officer. The Marine Corps of today is greatly indebted to this gallant Quaker, who, armed in righteousness, established the prestige and the glory, that we are pledged to 'carry on.'"

* * *

In the spring of 1926 I was assigned to command the 43d Company, Fifth Marines, at the Sesqui-Centennial Exposition at League Island Park, Southern Philadelphia. This

unit consisted of three officers and one hundred and eighteen men. Colonel Cyrus Radford, Depot Quartermaster, and his able assistants, did everything in their power to help us to construct a camp of interest, and to our east was built a replica of the old Tun Tavern which used to stand on King (now Water) street, near



From an old painting.

Major Samuel Nicholas, U. S. Marines,
in early manhood.

IN CONGRESS.

The DELEGATES of the UNITED COLONIES of New-Hampshire, Massachusetts Bay, Rhode-Island, Connecticut, New-York, New-Jersey, Pennsylvania, the COUNTIES of New-Castle, Kent, and Sussex on Delaware, Maryland, Virginia, North-Carolina, South-Carolina, and Georgia, to,

Samuel Nicholas Esquire

WE reposing especial Trust and Confidence in your Patriotism, Valour, Conduct and Fidelity,
DO by these Presents, constitute and appoint you to be *Captain of Marines* in the service of the Thirteen United
~~of the Armed~~ Colonies of North-America, fitted out for the defence of American Liberty, and for repelling every
hostile Invasion thereof. You are therefore carefully and diligently to discharge the Duty of *Captain*
~~of Marines~~ by doing and performing all Manner of Things thereunto belonging. And we do strictly
charge and require all Officers, Marines and Seamen under your Command, to be obedient to your
Orders as *Captain of Marines*. And you are to observe and follow such Orders and Directions from
Time to Time, as you shall receive from this or a future Congress of the United Colonies, or Committee
of Congress, for that Purpose appointed, or Commander in Chief for the Time being of the Navy of
the United Colonies, or any other your superior Officer, according to the Rules and Discipline of War,
the Usage of the Sea, and the Instructions herewith given you, in Pursuance of the Trust reposed in
you. This Commission to continue in Force until revoked by this or a future Congress. *Philadelphia Novem 28 1775*

By Order of the Congress

John Hancock PRESIDENT.

Asst. Chas Thompson

Commission of Samuel Nicholas as Captain of Marines
Dated November 28, 1775

Walnut, where the first Marines were organized for the Continental forces in 1775. The interior of this model had no second floor, and served as an art gallery for the exhibition of heroic scenes in Marine Corps history, painted by J. Joseph Capolino.

Across the street from our exhibit was the Army camp, where one thousand officers and soldiers were comfortably billeted. This was named in honor of that great hero Anthony Wayne of Pennsylvania. Not to be outdone by the Army in this regard, the Commandant of Marines ordained that our camp be named for Samuel Nicholas, likewise a Pennsylvanian and a leader in the American Revolution.

It was considered desirable to invite to the dedication of Camp Samuel Nicholas one of the lineal male descendants of our founder, and search was made for him. The publicity bureau had on file a copy of the following Communication:

"To the New York Herald Tribune:

"I noticed a letter in your paper yesterday from T. Hubert MacCanley, inquiring as to who was the founder of the Marine Corps.

"I have in my possession a family heirloom which may throw some light on the subject. It is a Commission signed by John Hancock, President of the Congress, and appoints Samuel Nicholas 'to be Captain of Marines.' It is dated November 28, 1775. Later the Captain became a Major, but that commission has been lost.

"The following excerpts are from Chapter 3, Volume

1, of a History of the United States Marine Corps, by Major Edwin N. McClellan, United States Marines, officer in charge, Historical Section:

"On November 2, 1775, Congress authorized the Naval Committee to "agree with such officers and seamen as are proper to man and command the four vessels—*Alfred*, *Columbia*, *Cabat*, and *Andrea Doria*—that had been authorized." It is known that the Naval Committee agreed on Esek Hopkins as Commander-in-Chief, on November 5, 1775, with Samuel Nicholas as the Captain of Marines for the *Alfred* and Isaac Craig as Lieutenant of Marines for the *Andrea Doria*, about the same time. However, Congress confirmed the "agreements" of the two Marine officers with signed commissions long before it confirmed the "agreement" with Hopkins. Nicholas was commissioned November 28, 1775, Craig the next day, and Hopkins not until December 22, 1775."

"Again 'The highest ranking officer of Marines serving during the Revolution was Major Samuel Nicholas, who, after active service with Hopkins' fleet and in the battles of Trenton (Assanpink) and Princeton, performed duties at the Capital that correspond more or less to those of the Commandant today, and, in addition, acted at various times as muster master for the Navy.'

CHARLES T. MITCHELL,

Glen Ridge, N. J., November 17, 1925.

The official inauguration of Camp Samuel Nicholas took place on Tuesday, June 29, 1926, at 4:00 P. M.,

and our most significant guests of honor were the founder's great great grandson, Mr. Charles Thomas Mitchell of 60 High Street, Glen Ridge, New Jersey, his wife, née Anna Gantvoort, and two young daughters, Florence Elizabeth and Anna Rosalie Mitchell. Neither son, John Nicholas nor William Gantvoort Mitchell could be present, the latter then being in service with the First Coast Artillery, Panama Canal Zone. In addition to regular Army, Navy, and Marine Corps representatives, there was present Captain Clement Biddle Wood, First Troop, Philadelphia City Cavalry (known locally as the First City Troop), especially invited as commanding officer of that famous military organization that antedates the Marine Corps and has been in continuous and honorable existence since the day it was founded, November 17, 1774.

Mr. Mitchell brought with him, as requested, the original commission of Samuel Nicholas dated November 28, 1775, and it was read aloud to the guests during the reception that followed in Tun Tavern.

After this duty there followed for me a trick at mail guard, a year here and there in Nicaragua, and a return to Philadelphia on recruiting duty. As a member of the Historical Society of Pennsylvania, I had access to the sacred books, and determined to see what could be done to find something more about Samuel Nicholas, of whom so little was known. In the documents of the Genealogical Society of Pennsylvania Gilbert Cope Collection, "Permits for Interments, Friends Burial Grounds, Philadelphia," page 111, from the original papers of the Arch Street Meeting, it was stated that a permit was granted for the interment of Samuel Nicholas on August 27, 1790. The age was recorded as 46 years. In a letter to me dated February 17, 1932, from one of our best Pennsylvania historians, Charles Francis Jenkins, he writes: "He (Samuel Nicholas) was born in Philadelphia in 1744 and died there August 27, 1790. He was a son of Anthony Nicholas."

The land in which Major Nicholas is buried is the second oldest cemetery in Philadelphia, and contains no headstones. James Logan, who died in 1751, secretary to William Penn, is thought—for example—to lie under the front brick walk. William Penn issued a patent dated 1701, confirming a verbal gift made in 1693 of the ground for burial purposes. It is located at the south-east corner of Arch and Fourth Streets, with entrance on Arch (early Mul-

berry) Street. The ground was used by The Religious Society of Friends for general burial for over a hundred years and especially during the yellow fever epidemics of 1793 and 1798. As many as 20,000 people are supposed there to be interred. The Meeting House, built of red brick and white trim, beautiful in its simplicity and in good repair, was erected in 1804, and has been used continuously ever since. It is under the care of the Monthly Meeting of Friends of Philadelphia, and is used for Weekly, Monthly, Quarterly, and Yearly Meetings of Friends; the last is held in the spring of each year and represents approximately five thousand Friends who gather from Eastern Pennsylvania, West Jersey, Northern Delaware, and Northeastern Maryland. The grounds are well tended, and a high red brick wall surrounds the whole; a view may be had from the street through iron grilled gates. The congregation is very cordial to strangers, as is typical of Friends the country over, in their meeting houses. This neighborhood of old Philadelphia was a very fashionable residential district in colonial days and contained many mansions of elegance.

Major Nicholas left no will; a letter of administration was granted September 8, 1790, to his widow, Mary Nicholas. This is numbered 69 and is at City Hall,

Penn Square, Philadelphia, in Book 1, page 232. It was photostated and sent to the Publicity Bureau, as also the commission as captain.

The Philadelphia Directory for 1785, Francis White Editor, page 53, gives:

Nicholas, Samuel, sign of Connestogoe Waggon, Market between Fourth and Fifth Streets.

And on Page 97:

Officers of the Society of Cincinnati

President, Major General Arthur St. Clair.

Vice President, Honorable Thomas M'Kean, Esq. LL. D., and Chief Justice of the State of Pennsylvania.

Treasurer, Colonel Francis Johnston.

Assistant Treasurer, Captain A. G. Claypoole.

Secretary, Major W. Jackson.

Assistant Secretary, Captain R. Fullerton.

Standing Committee for the Year

His Excellency John Dickinson, Esq., late President of the State of Pennsylvania. Brigadier General Richard Humpton.

Major S. Nicholas.

Major William M'Pherson.

Major T. L. Moore.

Major M. M'Connell.

Reverend William Rogers.

The Society meets on the

manus
 Sam Nicholas Major 2nd Lt 2d Inf 81 Miles
 Joshua Barney Lt in Navy
 Isaac Craig Major 2nd Lt Artillery
 Anthony Philip Walkeb Lieut Col of Engineers
 Stephen Bayard 2nd Lt Col 3^d Regt
 Shirley Capt 1st Regt Infantry
 Montgomery Capt Lt 3^d Regt Penn 2^d
 John R. D. Rodgers Major 3^d Regt
 Thomas Read Capt in the Navy
 Gibbons Capt and 5th Regt 1st Maj 81
 John H. Cundy Capt Late 1st Regt
 Jr. Watson Lt Col Aug 1776 Dec 1st Regt 1st Maj 81
 Richard Derby Capt 1st Regt 1776
 Ezra Turnbull 3^d Regt 1st Maj 1775 Capt
 James Lloyd Capt 1st Artillery
 John Barber Capt of Cavalry
 D 1781

First Names on Society of Cincinnati
Membership Roll

KNOW all Men by these Presents, That we *Mary Nicholas William Henly George Gray & John Everhart all of the City of Philad.*

are held and firmly bound unto **GEOGE CAMPBELL**, Esquire, Register for the Probate of Wills, and granting Letters of Administration, in and for the City and County of Philadelphia, in the Commonwealth of Pennsylvania, in the sum of **One thousand — Pounds**, to be paid to the said **George Campbell**, his Successors, Administrators or Assigns: To the which Payment well and truly to be made, we bind ourselves, jointly and severally, for and in the whole, our Heirs, Executors and Administrators, firmly by these Presents. Sealed with our Seals. Dated the **Eighteenth** Day of **September** — in the Year of our Lord One Thousand Seven Hundred and **Eighty Nine**.

THE Condition of this Obligation is such, That if the above bounden *Mary Nicholas William Henly George Gray & John Everhart* Administrat^r of all and singular the Goods, Chattels and Credits of **Samuel Nicholas** — deceased, do make, or cause to be made, a true and perfect Inventory of all and singular the Goods, Chattels and Credits of the said Deceased, which have or shall come to the Hands, Possession or Knowledge of them, the said *Mary & William* Administrat^r of all and singular the Goods, Chattels and Credits of any other Person or Persons for their use and the same so made to exhibit, or cause to be exhibited, into the Register's Office, in the County of Philadelphia, at or before the **Eighth** Day of **October** — next ensuing; and the same Goods, Chattels and Credits, and all other the Goods, Chattels and Credits of the said Deceased, at the Time of his Death, which at any Time after shall come to the Hands or Possession of the said *Mary & William* Administrat^r of all and singular the Goods, Chattels and Credits, or unto the Hands and Possession of any other Person or Persons for whom do well and truly administer according to Law. And further do make, or cause to be made a true and just Account of their said Administration, at or before the **Eighth** Day of **September** 1790. And all the Rest and Residue of the said Goods, Chattels and Credits, which shall be found remaining upon the said Administrat^r Account (the same being first examined and allowed of by the Orphans Court of the City and County of Philadelphia) shall deliver and pay unto such Person or Persons respectively, as the said Orphans Court by their Decree of Sentence, pursuant to the true Intent and Meaning of the several Laws now in Force in this Commonwealth, shall limit and appoint. And if it shall hereafter appear, that any last Will and Testament was made by the said Deceased, and the Executor or Executrix therein named do exhibit the same into the said Register's Office, making Request to have it allowed and approved accordingly: And if then the above bounden *Mary Nicholas & William Henly* — do render and deliver the said Letters of Administration (Approval of such Testament being first had and made in the said Register's Office) then this Obligation to be void and of none Effect, or else to remain in full Force and Virtue.

Sealed and delivered
in the Presence of

Mary Nicholas (L.S.)
Wm. Henly (L.S.)
George Gray (L.S.)
John Everhart (L.S.)

Letters of Administration Granted Mary Nicholas et al., September 8, 1790, for settlement of Estate of Samuel Nicholas.

4th of July annually at the City Tavern and the Committee meets as often as applications are made, at the Conestogoe Waggon, for the purpose of granting relief to the distressed widows, orphans, and members of the Society.

* * * * *

At the Historical Society of Pennsylvania were found the records of the Society of Cincinnati of Pennsylvania, 1891, in which is reproduced the original parchment scroll on which are signed the names of original members. The first name to head this historic document is that of Sam Nicholas, Major Marines, £75, dis d 81 Philadelphia. Then follows Joshua Barney, Lieutenant in Navy, and third comes Isaac Craig, Major Pennsylvania Artillery—the former Lieutenant Isaac Craig,

commissioned November 29, 1775, for service as a Marine on the *Andrea Doria*.

This was photostated and sent to the Publicity Bureau.

Also listed as members of the Society are the son, Samuel Nicholas, 1802, and the great grandson, Thomas Mitchell, 1891.

Hoping to find further information of the family by correspondence with the secretary of the "Pennsylvania Societas Cincinnatorum," I wrote to Mr. Francis Caldwell, 1108 South 40th Street, Philadelphia, and received the following reply:

MY DEAR MAJOR:

Your letter of October 31st, requesting information concerning Major Samuel Nicholas, has come to hand. I have tried to get data to satisfy your needs, all that I can find out, however, is that Major Nicholas served on the Standing Committee of the State Society of the Cincinnati of Pennsylvania from 1785 to 1788.

I am sorry to be of so little use to you and recommend that you employ Miss Leech, a genealogist, whose address you can get from Mr. Spofford, at the Historical Society of Pennsylvania, 1300 Locust Street, Philadelphia.

Very sincerely yours,
November 7, 1929. FRANCIS G. CALDWELL, Secretary.

* * * * *

Searches in the Pennsylvania *Packet* and *Advertiser*, and in the *Pennsylvania Gazette* for August and September,

Xo69

*Mary Nicholas &
William Henly —
Samuel Nicholas —
1790 —
Adm^r Granted —
Int. in Book I fol. 232.*

On the 8th day of September 1790 Mary Nicholas & William Henly — Adm^r Granted — Int. in Book I fol. 232.

1790, failed to produce any obituary notices about the late Samuel Nicholas.

A letter from Mr. Samuel Nicholas, Electric Storage Battery Co., Philadelphia, stated that Major Nicholas may have been one of his family, but he can not trace him. I was referred by him to his cousin, Mrs. Drury W. Cooper, née Esther Nicholas, of 30 Parkhurst Place, Montclair, N. J., who has the Nicholas family tree. Mrs. Cooper replied in November, 1929, but the information to be sent me later is not yet at hand. She is not a descendant.

****Wills were found at City Hall, Philadelphia, listed as follows:

Samuel Nicholas Date 1709 Book C Page 162 No. 127

Samuel Nicholas Date 1734 Book E Page 306 No. 384

Samuel Nicholas Date 1852 Book 28 Page 332 No. 248

It seemed quite probable that the 1709 will is that of the founder's grandfather, a lawyer who died in Philadelphia, April 19, 1709, leaving a widow, Margaret, daughter of Anthony and Jane Moore. I did not see it, however, not knowing the relationship of the two men, but have since had it photostated, and it actually is the grandfather's will.

Mr. Charles Thomas Mitchell replied to my enquiry by sending a pedigree made by Thomas Mitchell, Cincinnati in 1891, great grandson of the founder, to which were added data to include later generations. This correspondent referred me to his cousin, Dr. Elsie Reed Mitchell, 64 Barrow Street, Manhattan, N. Y., and I now quote from their letters:

The only thing I know about his private life is that he served as a super cargo on merchant ships travelling to China. We have a few trifling heirlooms which he brought from there. (C.T.M. October 29, 1929.)

I have discovered a family tree among my papers which I had entirely forgotten. It was written by my grandfather, John C. Mitchell (rather, from the context by his son, Thomas, Cincinnati, 1891, L.E.F.) and since I am sure you will return it, am enclosing the original. I also enclose a sketch showing his descendants, though I shall have to refer you to my cousin, Dr. Elsie Mitchell, for the missing names. She is an inveterate traveller, and is usually to be found at some remote quarter of the globe. Her brother, George, who now must be a Cincinnati since the death of the older brother, Samuel, is building a railroad for a Canadian firm in Central America. His family is in Montreal. (C. T. M. Nov. 3, 1929.)

I am returning under separate cover the copy of the *Gazette* and also in same envelope two photostats (positive and negative) of the Commission. **** There is no writing or printing on the back, so did not have photos made. (C.T.M. Nov. 6, 1929.)

Sometime after the close of the Revolutionary War

Samuel Nicholas was super cargo on one or more of Stephen Girard's boats plying between Philadelphia and Canton, China. He brought home various souvenirs which are now in possession of myself or other members of the family. There are two reddish wooden chests, one larger and one smaller, with trays which one of the staff of the Pennsylvania Museums told me were the type made on shipboard for the officers on long voyages, especially to the Orient. I have the smaller one. There is a large lacquer box containing four smaller boxes for four card packs, and a long one for mother of pearl counters. All have initials "M. J. N."—his wife's and also his daughter's. There is also a carved ivory fan with the same initials, also some other things not recalled.

His certificate of membership in the Cincinnati, signed by Washington and Knox, is in the possession of my oldest brother Samuel's daughter Mary in Sedgewick, Colorado. She is married and has three sons.

His emblem of membership in the Cincinnati is at present loaned to the Metropolitan Museum of New York, and is in its "Americana." It belongs to me. I have also a seal with a crest, a deer's head with antlers. It is said to be the Nicholas crest, but I was never sure until I met a granddaughter of Samuel Nicholas' son, Charles Jenkins Nicholas, who had the same from her grandfather.

Another son, William Nicholas, was in the Navy (?) (chart of Thomas Nicholas says Captain, U. S. Army, L.E.F.) and was drowned off the coast of one of our southern states — no, it was a shipwreck and he died of illness and exposure. I have a small miniature painting of him with a newspaper clipping of 1812 (?) relating to the incident. I am sorry that I can not verify this, or send impress of the seal, as my things are all packed away.

Samuel Nicholas' daughter never married. There is a tradition that she was engaged to Washington Irving (who also never married), and I have a letter from W. I. of introduction to someone in Canada of "Captain Wm. Nicholas" which was evidently never presented.

Religion: Apparently all the Nicholases belonged to the Episcopal Church. Race: It was al-



From an old print.

Tun Tavern in Philadelphia, 1775.

At the corner of Water Street and Tun Alley. The Birthplace of the Marine Corps.

ways assumed that they were of English descent: the crest would corroborate that, perhaps. (Major Nicholas married a Friend and is buried in Meeting L. E. F.)

My cousin, Charles T. Mitchell, has some data about Samuel Nicholas—nothing but names. I have also a paper connected with a will in which some names occur, but nothing definite. There was no tradition of his having had any brothers or sisters. (He had sisters, Mary and Sarah, minors in 1751, as shown by will of his father, Anthony Nicholas, Sr.) I have also a copy in letter form of his commission to raise a company of Marines, apparently made at the same time as the original date 1775. This also is packed up. I am sorry not to have anything more definite.—Elsie Reed Mitchell, 64 Barrow Street, N. Y.—January 18, 1932.

* * *

Whilst continuing my casual research for some light on our much neglected founder, I decided to have a look at the list of early members of the State in Schuylkill, a club that has continuously existed in the former capital of the United States since 1732. It is said to be the oldest surviving club in the United States, if not in the entire world. John Fanning Watson, a famous and accurate antiquarian, who wrote his Annals of Philadelphia in 1842, the 1927 edition of which I possess, describes it briefly on page 431, volume I, but on page 291, volume III, are supplementary and more detailed notes of Willis P. Hazard:

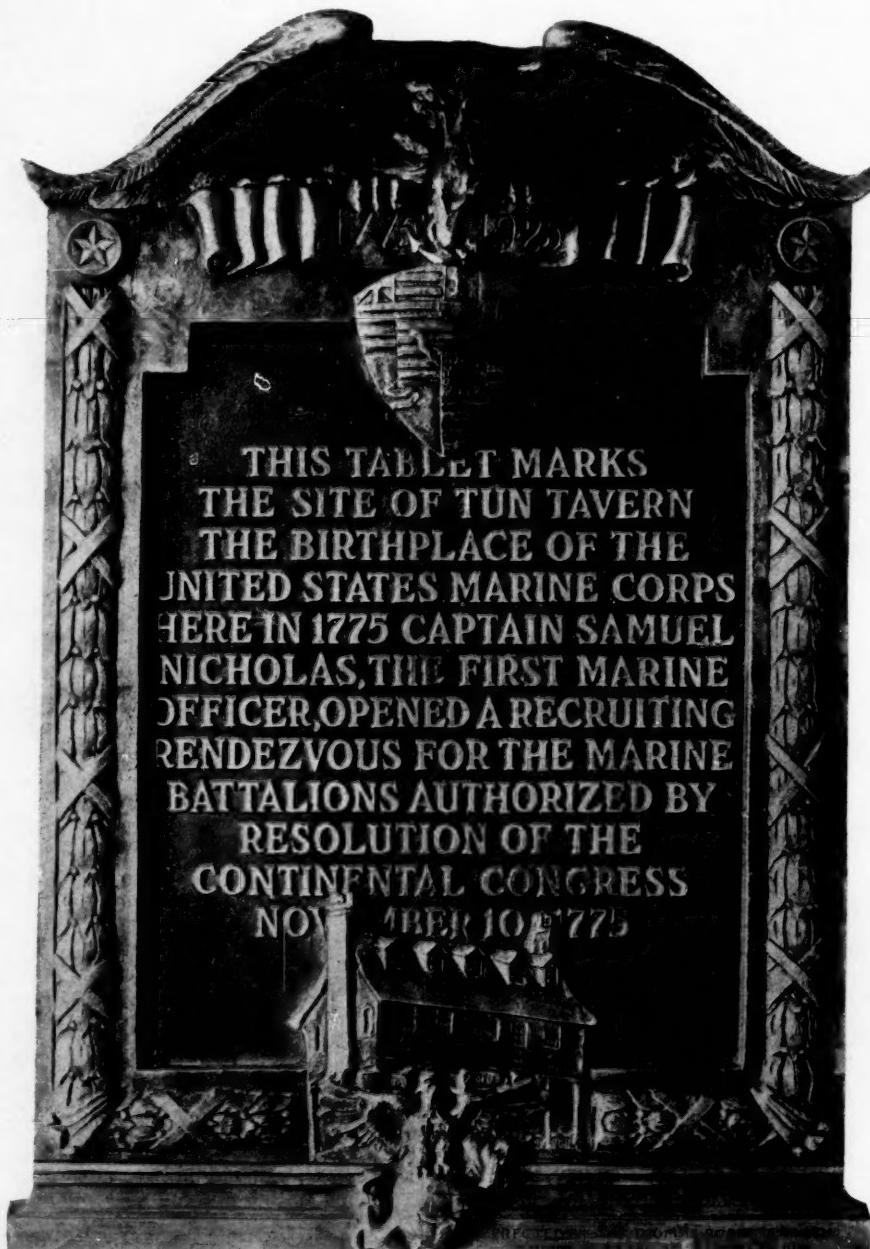
The Schuylkill Fishing Company

One of the peculiar institutions of Philadelphia, particularly one for the purposes of conviviality and exercise, is the "Schuylkill Fishing Company of the State in Schuylkill," founded in 1732 by the name of "The Colony in Schuylkill" by a few of the original settlers, many

of them emigrants with Penn to the New World. It has flourished in full vigor in the romantic solitudes of the river, the most ancient and highly respectable social society existing in the United States.

The Colonial Hall in which the meetings of the young colonists were held was on the estate of "Eaglesfield," judiciously selected in a wood on the western bank of the stream, and now in Fairmount Park, between

"Solitude," Penn's estate (still standing in the Zoological Gardens, L.E.F.) and "Sweetbriar," the seat of Samuel Breck (now restored and headquarters of the Junior League, just north of Girard Avenue Bridge, L.E.F.). The fine old mansion is now demolished. Here they remained for ninety years, until 1822, when the damming of the river at Fairmount destroyed the perch- and rock-fishing, and obliged them to emigrate to tide-water near Rambo's Rock, opposite Bartram's celebrated Botanical Gardens (still preserved by a Philadelphia society of ladies, L.E.F.) and situated below Gray's Ferry bridge. (The present location of the State in Schuylkill is at Essington on the west bank of the Delaware River, not far below Torresdale, L.E.F.). *****



Tablet Marks the Site of Tun Tavern in Philadelphia, where Captain S. Nicholas recruited the first company of Marines in November, 1775.

At a March meeting in 1789, held at Samuel Nicholas's Inn, sign of the Connostoge Waggon, north side of Market Street, above Fourth, it is recorded that "Mr. Benjamin Scull, the Prince of Fishermen, produced a trout, which he this day took in Schuylkill off his lay-out line, that measured fifteen inches."****

Admission to the honor of membership is by no means easy. Candidates for vacancies are soon proposed from many persons waiting for the honor. No gentleman is placed on the roll of probation until

eight members signify approval.

**** Besides those in the City Troop the following served in the Revolution: Major Samuel Nicholas of the Marine Corps; Lieutenant Anthony Morris of the Militia, killed at the Battle of Princeton; Lieutenant-Colonel William Bradford; Captains John Graff and John Wharton of the Militia; Captain Tench Francis of the rifle corps, etc. Several others appeared in the ranks of the Quaker and Silk-Stocking Companies, so designated or account of the wealth or high standing of the spirited gentlemen composing those corps raised in the city, and in other volunteer corps of infantry, at a crisis in affairs when neutrality was treason. In the war of 1812 many served or marched to the field. Below are a few names:

*Members of the Schuylkill Fishing Company,
Instituted A. D. 1732*

- 1732 1. Thomas Stretch, first governor.
- 20. Hugh Roberts.
- 22. Joseph Wharton (family of Lieutenant-Colonel Franklin Wharton, Commandant, U.S.M.C. L.E.F.)
- 26. James Logan.
- 1748 36. Samuel Mifflin.
- 37. George Gray (great grandfather of Mary Jenkins, wife of Samuel Nicholas, to Philadelphia from Barbados, circa 1691. L.E.F.)
- 42. Samuel Shoemaker.
- 43. Thomas Wharton, Jr.
- 44. Thomas Wharton.
- 46. Henry Hanison.
- 47. Samuel Wharton.
- 1754 52. Samuel Morris, Jr. (governor 46 years, d. 1812; Commanded First City Troop in Revolution, as does his descendant, E. B. Morris, today. L.E.F.)
- 59. William Bingham.
- 1760 82. Samuel Nicholas (founder of Marines. L.E.F.)
- 85. Clement Biddle (family of Major General William Phillips Biddle, Commandant, U.S.M.C. L.E.F.)
- 86. Thomas Mifflin.
- 90. Tench Francis.
- 91. Thomas Peters.
- 96. Robert Roberts.
- 97. John Nixon.
- 98. Isaac Hopkins.

(Samuel Nicholas died August 27, 1790; it is possible that 138. John Morrell, elected October 11, 1790; 139. Joseph Donnaldson or 140. John Graff, elected October 5, 1791, were selected to replace him, as no further members were admitted until 1796. En passant, of the seven men in Germantown on the Committee of subscriptions in 1759 to organize the Germantown Academy: John Christopher Meng, Christopher Sauer, Baltus Reser, Daniel Mackinett, John Jones, Charles Bensell, and Daniel Endt—four of them, Reser, Jones, Bensell (listed as Pensyl), and Endt (listed as Ent), were members of the State in Schuylkill, according to the History of the Germantown Academy, 1910. L.E.F.)

* * * * *

Another reference is made to Samuel Nicholas' occupation five years before his death on page 345, volume III, Watson's Annals: "The following were tavern-

signs in Philadelphia in 1785: *** Connostogoe Waggon (Samuel Nicholas), Market Street above Fourth. ****"

* * * * *

Having learned that our Major Nicholas was on the rolls of the State in Schuylkill, I wrote to Captain Clement Biddle Wood, who had been present to represent the First City Troop at the dedication of Camp Samuel Nicholas, vice president of the Penn Athletic Club, and newly elected member of the State in Schuylkill, to enquire for further details as to the hero of this tale. The reply of Captain Wood is so intelligent and painstaking that it is recorded in full:

June 5, 1931.

Major Louis E. Fagan,
First Brigade,
U. S. Marine Corps,
Port au Prince, Haiti.
Dear Major Fagan:

I just received your letter of May 15th, in regard to Samuel Nicholas. His membership number in State in Schuylkill was 102 and not 82. The history of Schuylkill Fishing Company (or State in Schuylkill), page 367, gives the following information:

| | |
|---|---|
| No. 102 Admitted Member May 1, 1760 | SAMUEL NICHOLAS. Born, —. Died, —. Buried in Friends' ground, August 27, 1790. Married Mary Jenkins, of Jenkintown, Pa., in 1778. Member of the Gloucester Fox Hunting Club, 1766. In 1775, commissioned Captain of Marines, and Major in 1776. |
|---|---|

He is mentioned in several other parts of the history. Perhaps the most interesting thing from your point of view is that he was one of the founders of the Gloucester Fox Hunting Club, being one of the 27 subscribers who signed an agreement dated Oct. 29, 1766, to subscribe to the kennel of the Fox Hounds. I am enclosing a copy of the agreement with the names of the signers for your convenience. He was also one of those present at the first meeting held on Dec. 13, 1766, at James Massey's, at which regulations to govern the hunt for the first year were drafted and adopted (History, page 407).

The history mentions him in other places, as follows:

Page 41—After the campaign of 1779, Governor Morris, Josiah Hewes, James Wharton, Samuel Nicholas, Tench Francis, William Govett, William Gray, R. Roberts, Thomas Peters, James White, Benjamin Eyres, Peter Kuhn, and Gustavus Risberg, convened by appointment at his quarters and resolved to reorganize and continue the Fishing Company. Events however frustrated the execution of their wishes for some time.

Page 42—It was not until March, 1781, a regular meeting of the Governor and Council of the new State in Schuylkill was held at St. Ogden's or Joseph the Ferryman's Inn.

Present

His Excellency Samuel Morris, Governor.

| | |
|------------------|--------------------|
| Josiah Hewes, | Peter Kuhn, |
| Samuel Nicholas, | Gustavus Risberg, |
| Tench Francis, | Benjamin Scull, |
| Robert Roberts, | Andrew Tybout, |
| William Gray, | James White, |
| William Govett, | Benjamin Eyre, |
| Thomas Peters, | James Wharton (15) |

The History also shows that he served in 1782 and 1783 on the Committee to look after the Navy, Castle and dockyard (page 44). He was also present at a meeting on Oct. 11, 1782, at which a revision of the old Code of laws was adopted. This Code changed the name from "Colony in Schuylkill" to "State in Schuylkill" on account of the Revolution (page 45). At the same meeting the Committee reported that he was one of the Committee to re-establish the State in Schuylkill in 1779 (page 49). Page 51 states:

The March meeting in 1789 was held at Samuel Nicholas' Inn, sign of the Conestoga Wagon, north side of Market Street, above Fourth, at which the members generally attended * * *.

At some time after 1783 he was Counsellor (one of the officers of State in Schuylkill).

In addition the history mentions that the State in Schuylkill held a meeting at the Widow Nicholas' Inn, Market Street, on March 14, 1793 (page 53), and on October 9, 1794, and in October, 1795.

Until receipt of your letter I had no idea that the Senior Officer of the Marines during the Revolution was a member of the State in Schuylkill, and I have been much interested in looking up references to him in the State in Schuylkill History. I will appreciate it very much if you will send me a copy of your article when it is published in the MARINE CORPS GAZETTE, or advise me when it is published so that I can obtain a copy for myself and for the State in Schuylkill.

I am glad that you are enjoying your tour of duty in Haiti.
Yours sincerely,

CLEMENT B. WOOD.

Philada. 29th October, 1766.

We the subscribers, being about to provide and keep a kennel of Fox Hounds, do mutually agree with each other in the manner following, viz:

1st.—That each of us do agree to pay into the hands of such persons of the company, as shall be hereafter appointed, the sum of five pounds current money, for the purposes aforesaid.

2d.—That as soon as a sufficient number of gentlemen have subscribed, we will call a general meeting of the company and agree by a majority of voices, to such rules and regulations, as will be most likely to answer the intended purpose.

Benjamin Chew, pr. order
John Dickinson,
Thomas Lawrence,
Moor Furman,
Enoch Story,
Charles Willing,
Thomas Willing, pr. order
Levi Hollingsworth,
James Wharton,
Thomas Mifflin,
William Parr,
Israel Morris, Jr.,
Tench Francis,
David Rhea,
Robert Morris,
John White,
John Cadwallader,
Samuel Morris, Jr.,
Anthony Morris, Jr.,
Turbot Francis, pr. order
Zebulon Rudolph,
Richard Bache,
Isaac Wikoff,
Joseph Wood,
David Potts,

(27)

It will be seen that Samuel Nicholas enjoyed the friendship of the leading men in the society of Philadelphia throughout his career. The names of the members of the State in Schuylkill and of the Gloucester Fox Hunting Club are significant to anyone who is at all conversant with the history of that city. Chew, Dickinson, Willing, Hollingsworth, Shoemaker, Wharton, Mifflin, Roberts, Morris, Cadwallader, Bache, Hamilton—these are the families that built pre-Revolutionary Philadelphia, making of it the community that was logically chosen as the capital of the infant republic. And these names are still significant in the conservative society of that city today.

Small wonder that Nicholas was fitted for the duties of a marine; with the background of supercargo to China on windjammers, and horsemanship acquired in chasing elusive foxes across the colony of Jersey. It would be rare indeed to find a young gentleman of thirty-two years of age better qualified for the ordeal.

In his youth fox hunting formed the field exercise of some of the wealthy citizens. There was a kennel of hounds kept by a man named Butler, for the company. Its situation was then out of town (the northern limit of Philadelphia was Vine St.) on the brow of the hill north of Callowhill near Second St. As population increased, the game decreased, so much so that the establishment had to remove directly across the Delaware River to Gloucester, so as to make their hunts in the Jersey pines. At the same time the company provided for their old huntsman Butler by setting him up, in 1756, with the first public stage for New York. The new kennel was situated near the Gloucester ferry slip, and Samuel Morris was for years the life and head of the club. This is just below modern Camden, founded by Jacob Cooper in 1773, and for years after the Revolution an obscure village.

Horse races were early introduced, and almost from their beginning were held out "Race Street"—so popularly called because of its being the street directly leading out to the race course, cleared for the purpose through forest trees. All genteel horses were pacers; a trotter was deemed a base breed.

Captain Graydon, in his Memoirs, says racing was a great passion in his young days. The race horses, in 1760, were kept at the Widow Nicholas' stables, which extended down Fourth Street, two-thirds of the way to Chestnut Street, from the rear of her tavern then at the corner of High (Market) Street. This must have been the founder's widowed mother, Mrs. Anthony Nicholas.

To revert to the Gloucester Fox Hunting Club—the membership was composed of Philadel-

phians and residents of Gloucester County, New Jersey. They frequently visited Woodbury, and lodged their hounds in a stable back of the academy. The club originated from accidental causes. The reciprocities of social intercourse between wealthy city dwellers and those of landed property in the blessed retirement of a country life, laid the foundations of an association of the most delightful character, for society of any degree of elegance was then comparatively limited.

The sportsmen convened in 1766 at the Philadelphia Coffee House, S. W. corner of Front and Market Streets. It was agreed to hunt twice each week, with intermediate days if ordered; but in the course of a year one day a week proved sufficient. In 1769 Samuel Morris permitted his negro slave Natt to serve the club, and his pay furnished him with clothing and eventually purchased his freedom. He was then regularly installed as Knight of the Whip, and became master and commander of all the hounds. This venerable gray-haired African sportsman was allowed £50 per year, a house, a horse, and Jack Still as assistant.

The established hunting uniform in 1774 was a dark



Tun Tavern, as reproduced at U. S. Marine Camp, at Sesqui Centennial Exposition, Philadelphia, 1926. Drawn by Lt. Cmdr. Henry Clay McIlvaine, Jr., U. S. N. R., of Philadelphia.

brown cloth coatee with lapelled dragoon pockets, white buttons and frocked sleeves, buff waistcoat and breeches, and a black velvet cap. The pack numbered sixteen couple of fleet hounds.

Perhaps the marine's uniform during the Revolution was influenced somewhat by the hunt club's livery. At any rate, the outbreak of hostilities suspended any further fox hunting until October, 1780, when a meeting was held at the City Coffee House, with Captain Morris presiding. He claimed £3,553 as due him, and £187 was collected from each one of nineteen members and \$500 from certain "privileged hunters." These sums were in Continental currency, £6 specie being equal to £187 10s.

Amongst Samuel Nicholas' friends who later joined were: Joseph Penrose, Nathaniel Lewis, Joseph Pemberton, Alvaro d'Ornellas, Stephen Moylan, that famous Irishman whose dragoons were a scourge to the English in the Revolution, Tench Tilghman, Samuel Caldwell, Samuel Howell, John Lardner, Benjamin Tilghman, Samuel Harrison, Isaac Cox, John Dunlap, Thomas Bond, Jr., John Wistar.

So soon as the war ended, the club again flourished, and Captain Samuel Morris, already governor of the State in Schuylkill, was annually rechosen president, and so remained head of both organizations until his death. To this day, he is invariably toasted at every social gathering of the State in Schuylkill.

In 1800 there were forty members; in 1818 the master spirit, Captain Charles Ross, died, and the Gloucester Fox Hunting Club was no more. The pack was unkennelled and dispersed, old Jonas Cattell, the guide and whipper-in, and Cupid, the ebony huntsman, sought other employment. The distribution of these fine hounds, chiefly amongst the sporting farmers of West Jersey, has to this day left its mark in their numerous progeny roaming New Jersey.

The first Nicholas ancestor of whom I have found record is Samuel Nicholas, Esq., a lawyer and intimate friend of John Cadwallader, one of Philadelphia's first schoolmasters and of Welsh extraction. Samuel died in 1709.—his will is dated "Reign of 7th/yr. Queen Anne,"—and he left a Quaker widow, Margaret, daughter of Anthony and Jane Moore. One of his two sons, apparently the younger, was Anthony Nicholas, who married two sisters successively, Rebecca and Mary Shute, whose brother, Atwood Shute, was lieutenant in Captain Charles Willing's company of the Associated Regiments in 1748, Mayor of Philadelphia from 1755-58, and who in 1761 was on the committee to supervise the building of St. Peter's Church at 3d and Pine Streets, where Washington worshipped in later years when it housed the post-Revolution Protestant-Episcopal Church, successor to the Church of England in America. The latter of Anthony's wives, Mary, was the widow Cowman at the time of this second venture for them both, and bore her husband two daughters and one son, Samuel, the subject of this sketch, born 1744 at Philadelphia. As we have learned, he was an able seaman, a skilled horseman, a convivial bon-vivant, and a thorn in the side of his Majesty George III's brave henchmen in America. He married a Friend, Mary, one of nine children born to Dr. Charles Jenkins, of Jenkintown, Pa. (whose father Stephen was a Welshman) and his wife Mary, daughter of Joseph

Gray and Mary Hastings, all of Philadelphia. Another daughter, Sarah Jenkins, married General Josiah Hamer of the Revolution and subsequent Indian wars in Ohio, whose descendants flourish to this day, some of whom I know.

This union of Major Samuel Nicholas and Mary Jenkins was blessed with three sons and two daughters: (1)—Samuel 3d, (2)—Charles Jenkins, (3)—William, (4)—Sarah, and (5)—Mary Jenkins. (2)—Charles Jenkins Nicholas married Alice Ann Hoffman, of Philadelphia, whose only son, Ogden Hoffman Nicholas, died an infant; the only known daughter, Matilda, is now represented by Mr. J. R. Molony, of Berkeley, Calif. (3)—William Nicholas entered the Sixth U. S. Infantry in 1808 as second lieutenant, and as first lieutenant resigned in 1811. As soon as the War of 1812 broke, he again entered the army, and was commissioned captain of the Second U. S. Artillery, being transferred to Corps Artillery in 1814. In 1813 he was captured, and imprisoned at Montreal, Canada. Exchanged, he continued in service until his honourable discharge, June 15, 1815. Later he engaged in business in Philadelphia, and in 1816 made a commercial voyage on the schooner *Paul Jones*, captain Stotesbury, to the West Indies. In the Bight of Léogane, Haiti, the vessel was wrecked in a storm, and all on deck were washed overboard. Captain Nicholas, in the cabin at the time, escaped to the deck through the skylight. After drifting for three days and nights, they grounded near Mole St. Nicholas, in the north-west part of Henri Christophe's Kingdom, and at this desolate spot those who had survived drowning slowly died of fever—all save the mate and one sailor, who returned to New York in the brig *Bee*. Thus tragically perished Captain William Nicholas, aged 33 years and unmarried, November, 1816. *The Gazette*, Philadelphia, February 13, 1817, records the details, taken from a letter written to Samuel Nicholas by his brother Charles Jenkins Nicholas. Copies of both are at Headquarters, U. S. Marine Corps, as well as a letter written by Washington Irving to David Ogden, Esq., Montreal, dated 1813, asking that "all the services and attentions which you consider due to a Gentleman of worth and honourable standing, and a particular friend of mine" be shown to Captain William Nicholas. Mr. Ogden was a relative of Alice Ann Hoffman, above mentioned.

(4)—Sarah Nicholas married Peter Hagner, Esq., a gentleman of considerable prominence, and died without issue; Mr. Hagner then married Miss Randall of Annapolis, from whom is descended Dr. Francis Randall Hagner, M. D., of Washington, D. C. (5)—Mary Jenkins Nicholas, a famous beauty, died unmarried; family tradition relates that she was betrothed to the famous New York author, Washington Irving, who was an intimate friend of the Nicholas family.

(1)—Samuel Nicholas, third of the name in America, oldest son of Major Samuel Nicholas, U. S. Marines, and Mary Jenkins, succeeded to his father's membership as a Cincinnatus in 1802. He married Maria Redman, one of the belles of Philadelphia society, and by her had two sons and one daughter: Samuel 4th, who died unmarried aged 24 years; Charles Jenkins 2d, who died unmarried in 1881, and Rebecca, born 1814, who married, 1839, John Cowell Mitchell, Esq., born 1817, of "Elmwood," now in West Philadelphia, son of Thomas Mitchell, Esq., and Maria Matilda Cowell (daughter of John Cowell, provost of Princeton College, and Mary

Cash), and grandson of Benjamin Mitchell, Esq., native of Ireland. All were lawyers in Philadelphia.

It is from the marriage of Rebecca Nicholas and John Cowell Mitchell that the senior line of Major Nicholas descends. In 1838 Mr. Mitchell, aged twenty-one years, was admitted to the bar for practise of law. Four sons and two daughters were born: Samuel Nicholas (1840-1846); Stephen Tyng (1850-1850); Maria (1842-1876) unmarried; Julianna Miller (1849-1923) unmarried; and those who survived and had issue: Thomas (1845-1909) and John Nicholas (1847-1924). The younger of these two brothers, Dr. John Nicholas Mitchell, M. D., studied the classics at Pennsylvania and medicine and surgery at Hahnemann, and practised his profession in Philadelphia. He married twice; first Florence Lovina Thomas, daughter of Dr. Amos Russell Thomas, M. D., founder and dean of the new Hahnemann College of Philadelphia, and Elizabeth Bacon, of Watertown, N. Y. By this marriage there is one son: Charles Thomas Mitchell, of whom presently. By his second marriage with Anne Rosalie Leonard, of Philadelphia, there was no issue. The older of the two surviving brothers was Captain Thomas Mitchell, Pennsylvania, 1865, who read the law in the offices of Henry Wharton, and later became a Federal judge in Denver, Colo. He was an intimate friend of Judge Benjamin Brewster and Lewis Cochran Cassidy, Attorney General of Pennsylvania, and was elected the third Cincinnatus in 1891. During the Civil War, he served as second lieutenant, 198th Pennsylvania Volunteers, and later was captain on General Chamberlain's staff, being cited for gallantry in action. He married Lucy Breck Reed, daughter of Samuel Payne Reed, of Cane Island, Beaufort, S. C. (son of Samuel Reed of Boston, to S. C. and Eliza Manory Dopson of S. C.), and Eliza Breck, daughter of George Breck and Catherine Israel, of Bristol, Pa. The Breck family was famed for its culture, wealth, and charm; George's brother, Samuel, of Sweetbriar Mansion (now standing in West Fairmount Park, Phila.), was the intimate friend of many of the most distinguished men of his day, and both were sons of Samuel Breck and Hannah Andrews, who came from Boston and settled in Philadelphia. By this marriage there were three sons and one daughter: Samuel Nicholas (1873-1925); George Breck, born 1875; John Austin (1876-1902) educated at Illinois as an architect and un-

married; and Elsie Reed, born 1871. Samuel Nicholas Mitchell, oldest son of the above, married Louise Pinckney, daughter of Charles Coatesworthy Pinckney and Mary Elizabeth Boardman of Chicago, resided in Denver, Colo., with his family of three daughters, and died without male issue. His rights to the Cincinnati passed to his younger surviving brother, George Breck Mitchell, born in Germantown, Pa., 1875, Civil Engineer, 1896, at the Colorado School of Mines, who has spent his life in general engineering construction work in both North and South America, and who, at the age of 58 years, is now settled in Montreal, Province of Quebec, Canada, where he is director and general superintendent of the Atlas Construction Company, Ltd. He married Elizabeth Margaret Naomi Lewis, daughter of the late Francis John Lewis, an English banker who settled in Montreal. By this marriage there are three daughters and no sons: Naomi Breck Mitchell, born 1905, married to Hubert James Housemayne Du Boulay, eldest son of a physician of Chandlersford, England, and Elsie Marjorie and Norma Lloyd, young ladies who have but recently made their debut in society.

Neither Samuel Nicholas Mitchell nor his brother, George Breck Mitchell, above mentioned, has availed himself of the honour of becoming a Cincinnatus; failing male issue from the latter, the right to membership from Major Samuel Nicholas will pass at his death to his only first cousin of the surname Mitchell, Charles Thomas Mitchell, born Philadelphia 1878, Pennsylvania 1899, Yale Scientific 1901, Freiburg, Saxony 1903, a well known engineer in Manhattan, who resides at 60 High Street, Glen Ridge, N. J. He is the son of Dr. John Nicholas Mitchell, M. D., above mentioned. In 1904 he married Anna Gantvoort, daughter of Gerrit Jan Gantvoort and Maria Anna Clasina

Arends, both of Amsterdam. By her there are two sons and two daughters: John Nicholas Mitchell 2d, born 1905; William Gantvoort Mitchell, born 1906, who as a youngster served an honourable enlistment in the First U. S. Coast Artillery at Panama, and is now living at Evansville, Wisconsin, married to Harriet Brooks, daughter of the late Charles Sumner Brooks and Minnie Bement Thomas, both of that city; Florence Elizabeth Mitchell, born 1902; and Anna Rosalie Mitchell, born 1903—both unmarried.

It is most satisfactory to note that this senior line



Major Samuel Nicholas
(1744-1790)

First Officer of U. S. Marines. Bust by Normil Charles, sculptor, Port au Prince, Haiti, 1932.

from the founder of the Marine Corps is still represented by people of culture, intellect, and splendid character, representative of the highest type of Americanism. Perhaps the most famous member of the living generations is Dr. Elsie Reed Mitchell, M. D., only sister of George Breck Mitchell, head of the family. She resides at 60 Barrow St., Greenwich Village, Manhattan, when not abroad in remote parts of the world. Born at Denver in 1871, she defied her father's wishes and studied medicine and surgery, which she practiced with pronounced success for more than thirty years, seven of which were spent in many parts of India. During the World War, Dr. Mitchell volunteered her services to the Allies, and spent many months in dangerous sectors, where her skill and courage were conspicuous. At the end of this war, Dr. Mitchell served with the Near East Relief, after which she went to Siberia, under Soviet regime, to do surgical and welfare work in the desolate coal mines of that bleak country. Later she travelled in Mongolia and along the basin of the Volga River. In 1929 Miss Mitchell and Miss Wilson wrote "Vagabonding at Fifty," a book of part of her adventures published by Coward, McCann, N. Y. Dr. Mitchell, now sixty-two years of age, is more active than the average woman in her early thirties. She knows Russia as few Americans do, and is personna grata in that coun-

try. She is a charming hostess, as the writer can gratefully testify, and possesses a delightful sense of humour and a modest spirit, which have gained for her a host of friends at home and abroad. It is by her and her first cousin, Charles Thomas Mitchell, that much of the data—too complete for inclusion here—have been so generously given for the information of the Marine Corps. Dr. Mitchell has permitted the writer to photostat an original letter dated 1779, signed Joseph Pennell, directing Major Samuel Nicholas to raise a company of Marines; another dated 1781, signed Robert Morris, appointing Major Nicholas a member of a Court Martial Board; and the certificate of membership of her father, Judge Thomas Mitchell, in the Societas Cincinnatorum in 1891. Copies of these are at Headquarters, U.S.M.C.

A bust of Major Nicholas was unveiled at Port au Prince, Haiti, on November 28, 1933, the 157th anniversary of his first commission as a Captain of Marines, by Hugh Mercer Fagan, aged twelve, great great great great grandson of Brigadier General Hugh Mercer, friend of Nicholas, who fell mortally wounded at Princeton. The First Marine Brigade in Haiti has recently presented this fine statue to Headquarters, U. S. Marine Corps, at Washington, D. C. Photographs of it are at the Congressional Library, and at the Publicity Bureau, U. S. M. C., Philadelphia.



Recruiting the First American Marines, at Tun Tavern, Philadelphia, November, 1775

Advanced Reserve Training in the Department of the Pacific

BY MAJOR RAYMOND R. WRIGHT, U. S. M. C.

■ On Sunday, August 20, 1933, under ideal weather conditions, and with a crowd of about five thousand spectators enjoying the problem, the Second Battalion of the 25th Reserve Marines, assisted by Fighting Squadron Four and Observation Squadron Ten, United States Marine Corps Reserve, engaged in a spectacular problem which had been drawn up for the purpose of demonstrating the use of aviation in connection with land operations. The terrain for this problem was amid the rolling country north of San Rafael, California, which was ideal for this purpose.

It had been assumed that an enemy battalion of slightly less numerical strength had hastily entrenched a position along the southeast slope of the knoll, about one mile northwest of San Rafael, and that the Second Battalion, 25th Reserve Marines had been sent out from San Rafael to dislodge the enemy from his position and drive him to the southwest. The topography of the ground was such as to influence the attacking force to make an envelopment of the enemy's left flank. Prior to the attack, aviation had discovered the enemy and reported to the Battalion Commander the position and probable strength of this enemy force and then returned to harass and observe the enemy while the infantry took up the position for the attack.

After further reconnaissance the Battalion advanced in route columns, and developed for the attack. The approach march was made and the leading company went into action to the enemy's front, where eventually this company's advance was held up because of the enemy's superior fire power. In the meantime, the company which was to make the envelopment had moved to a position on the enemy's left flank, and with the assistance of the fire power of the trench mortar and 37m/m guns, moved forward to a position slightly in rear of their final assault position.

At this time, the enemy's machine gun and trench mortars were pouring such a destructive fire on the advanced waves of the Second Battalion that further advance was out of the question until the enemy's machine guns could be put out of action.

The Battalion Commander, therefore, asked aviation for assistance and a short time later the air force succeeded in bombing and putting out of action the enemy's machine guns and trench mortars. This enabled the troops of the Second Battalion to move forward to the final assault and seizure of the enemy's position. Throughout the problem, communication between the infantry and aviation was maintained by use of panels and drop messages.

Due to the topography of the terrain, the spectators

were able to view the entire proceedings from a low hill on the enemy's right flank, which provided them with a clear view of the entire problem from the time the troops were deployed until the final assault.

Thus another step in advanced training for both infantry and aviation units of the Marine Corps Reserve in the Department of the Pacific was inaugurated.

The location of the battalions of the 25th Reserve Marines on this coast is such that each of the three battalions; one in the Puget Sound area, one in the San Francisco Bay area, and one in the Los Angeles area, have an aviation unit of the Reserve nearby so that it is possible for each battalion to conduct similar problems of this nature, assisted by the aviation units in their vicinity.

It has been felt for some time that some effort of providing additional combat training should be utilized to fill in between the usual armory training during the year, and the annual two weeks' active duty training. It is believed that this method of having field exercises will prove of decided advantage to all organized units of the Reserve in this Department.

The advantages of this type of training may be summarized as follows:

- (1) It increases the interest and knowledge of officers and men of both infantry and aviation units as to the powers and limitations of each arm.
- (2) It gives an intermediate step in training between armory training and the annual training period.
- (3) It brings the infantry and aviation units into closer contact with mutual benefits to each.
- (4) It increases the interest of the civil population in military affairs.
- (5) It brings desirable publicity not only for the Reserve, but for the regular Marine Corps as well.

It is hoped that this method of providing additional training will prove of interest to other Reserve units throughout the United States, and will bring to them the same benefits as has been thus far obtained in the Department of the Pacific.

The opinions or assertions contained in this article on advanced Reserve training in the Department of the Pacific, are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the Naval service at large.

The Education of a Marine Officer

BY BRIGADIER GENERAL DION WILLIAMS, U.S.M.C.

III. UNITED STATES ARMY AND NAVY SERVICE SCHOOLS

■ All of the officers of the Marine Corps are assigned to take the courses at the Marine Corps Schools at some appropriate time in their career; but in order that a certain number of officers may receive the benefit of the courses at the various Army and Navy Service Schools a limited number of Marine Officers are detailed to these schools.

In the U. S. Army the service schools to which officers of the Marine Corps are detailed include the Command and General Staff School at Fort Leavenworth, Kansas, which is a general service school to which officers of all arms and branches of the Army are assigned, the Army Industrial College at Washington, D. C., which is also a general service school, and the following special service schools: the Infantry School at Fort Benning, Georgia, the Cavalry School at Fort Riley, Kansas, the Field Artillery School at Fort Sill, Oklahoma, the Coast Artillery School at Fort Monroe, Virginia, the Army Air Corps Technical School at Rantoul, Illinois, the Army Air Corps Tactical School at Maxwell Field, Montgomery, Alabama, the Quartermaster Corps Subsistence School at Chicago, Illinois, the Quartermaster Corps Motor Transport School at Holabird Quartermaster Depot, Baltimore, Maryland, the Chemical Warfare School at Edgewood Arsenal, Maryland, and the Army Signal School at Fort Monmouth, New Jersey.

The Navy maintains the U. S. Naval Academy Post-graduate School at Annapolis, Maryland, and officers are detailed to this school for the general course and for courses in Aeronautical Engineering and in Communications.

The officers of the Navy and Marine Corps detailed for instruction and training necessary to fit them to become Naval Aviators and Naval Aviation Pilots receive this instruction and training at the Naval Air Station, Pensacola, Florida.

Brief synopses of the courses at these schools are included in the following pages of this article in order to indicate the general scope and extent of the instruction and training available to the officers of the services.

THE COMMAND AND GENERAL STAFF SCHOOL, FORT LEAVENWORTH, KANS.

Under the Army Educational System the Command and Staff School at Fort Leavenworth is a General Service School in that it treats of all arms of the service, while the other Army Schools described in this article are known as Special Service Schools since each of these latter schools treats of one arm of the service.

The stated Mission of the Command and General Staff School is to prepare officers for command and general staff duties by training them in the following:

1. The combined use of all arms in the division and in the Army Corps.
2. The proper functions of commanders of divisions, Army Corps, and Corps Areas and the technique of exercising command.

3. The proper functions of general staff officers of divisions, Army Corps, and Corps Areas and the technique of general staff procedure.

The school conducts a Command and General Staff Course for officers of the regular service, and a special command and staff course for officers of the National Guard and Organized Reserves.

The Command and General Staff Course.—The course is two years in extent, each school year being from September to the following June. The course consists of lectures, conferences, map maneuvers, map exercises, tactical rides, map problems, terrain exercises, and general exercises.

First Year.—The subjects treated are as follows:

Military Organization.—General principles, the Cavalry Division, the Infantry Division, Field Artillery, Air Corps.

Solution of Problems.—Mechanics of solving problems, estimate of the situation, solution of map problems, discussion of solutions.

Field Engineering.—Maps and map reading, study of maps and airplane photographs, study and utilization of terrain in tactical operations, types of field work and organization of the ground.

Combat Orders.—General discussion, formal field orders, dictated and oral orders, operations maps, administrative plans and orders.

Tactics and Technique.—Air Corps, Cavalry, Chemical Warfare Service, Coast Artillery Corps, Antiaircraft Artillery, Engineers, Field Artillery, Infantry, Signal Corps.

Military Intelligence.—Military intelligence agencies in the division, object and character of military intelligence work, character and designation of essential elements of enemy information, collection of enemy information, G-2 plan, G-2 annex, evaluation and dissemination of enemy information, detailed operation of G-2 section at division command post, military intelligence operations in open warfare, military intelligence operations of an A. E. F. World War division.

Tactical Principles and Decisions.—Fundamentals of war, general discussion of the offensive, general discussion of the defensive, infantry division, marches, reconnaissance and security, halts and security at a halt, signal communication on the march and at a halt, positions in readiness, development of combat, terrain study prior to meeting engagement, meeting engagement, attack against positions, defense of positions, counter attacks, counter offensive, attack against a zone, defense of a zone, raids, relief of units in battle, defense of a river line, attack of a river line, naval ships, defense of a coast line, attack and defense of defiles, naval artillery, navy in coast defense, retrograde movements, withdrawal from action, delaying action, convoys and protection of supply routes, defense against a mechanized force, pursuits, rear guard action, naval phases of coast defense, overseas expeditions, navy in overseas expeditions, combat in mountain

terrain, mechanized cavalry, marches, reconnaissance, counter reconnaissance, offensive combat, pursuit, defensive combat, raids, signal communication in cavalry operations.

Current History.—The situation in the Far East, the situation in Europe, the United States and the world situation, the balance of power in Europe, our relations with Latin America, the situation in Russia.

Command, Staff and Logistics.—Command and staff functions, general staff functions, Quartermaster service, ordnance service, medical service, Provost marshal, engineer service; Logistics of troop movements, by rail, by motor transport, by marching; combat employment of Quartermaster regiment, of medical regiment; Supply and evacuation, fundamentals, on the march, in a meeting engagement; work sheets, journals, diaries and staff reports; troop leading G-1, G-4; Division G-1, G-4 in attack; supply and evacuation in zone defense, in attack of a river line, in defense of a land frontier, in defense of a coast line, in retrograde movements, in pursuit; Logistics of an overseas expedition; command and staff liaison.

Leadership.—Essentials of command, leadership in great crises of the World War, psychology of leadership, Grant and Lee as leaders.

General Tactical Functions of Larger Units.—Division in Corps and Army, time and space; division in operations of Corps and Army; logistics and supply of a division when part of a Corps and Army.

Legal Principles.—Aerial regulations, constitutional law, international law, laws of war, domestic disturbances.

Military History.—Historical research, methodology, Henry-Donelson campaign, U. S. Military Policy, historical illustrations of tactical operations, Civil War.

Troop Leading.—Infantry Division in position in readiness, in meeting engagement, in attack in a meeting engagement, in defense in a meeting engagement, in attack of a position, in withdrawal from action; Cavalry Division in attack, pursuit, and delaying action.

Discussion of Map Problems.—Course of fifteen lectures and discussions of 15 map problems.

General Map Maneuvers.—Infantry Division, Cavalry Division, Corps, division commander and staff, Corps commander and staff.

General Terrain Exercises.—Eighteen general terrain exercises.

Second Year.—The subjects treated are as follows:

Military Organization.—The organization of a Corps, of an Army, of an Air Force, of an Air Division, of a mechanized force.

Tactics and Technique of the Associated Arms.—Air Corps, Cavalry, Chemical Warfare Service, Coast Artillery, Field Artillery, Engineers, Infantry, Signal Corps.

Command, Staff and Logistics.—Command and staff of larger units, Corps Area commander and staff, theatre of operations, organization, line of communication, supply, hospitalization and evacuation; logistics of the detached Corps, supply and evacuation, troop movements, march tables, attack, retirement, delaying action, attack and defense of a river line, meeting engagements; logistics of Army and Corps, plan of campaign, concentration, administrative services, engineers, regulating stations, supply and evacuation, the advance, attack, defense, retirement, attack of zone, pursuit; logistics of coast defense, logistics of landing on hostile shore; G-3 reconnaissance.

Military History.—World War, the evolution and fu-

ture development of tactical and strategic principles; the developments of plans of campaign.

Tactical and Strategical Principles.—Detached Corps—the advance, halts and security, development for attack, conduct of attack, retirement, delaying action, defense of position, counter attack, signal communication, attack and defense of river line, exploitation of success; Corps and Army—Plan of campaign, concentration, advance, meeting engagement, attack, defense, counter attack, retirement, counter offensive, zone defense, signal communication; tactical and strategical operations of an interior Army, of a flank Army; defense of a coast line; overseas expeditions.

Military Intelligence.—Larger units, lessons from Battle of Waterloo, military intelligence in special World War operations.

Military Geography.—Military application of physical geography, of economic and political geography, medical aspects of military geography.

Field Engineering.—Principles of ground organization, utilization of terrain by Army, ground organization for defense of coast line.

Map Problems and Terrain Exercises and Discussion.—39 map problems and 2 terrain exercises and discussions of them.

General Map Maneuvers.—Corps in attack and defense of position; Corps in attack and defense of coast line, in meeting engagement, in attack and defense of position, in attack and defense of river line; Corps and division commanders and staff.

War Planning Principles.—Relation of soldier and statesman; development of strategical and mobilization plans; strategical surveys; mobilization; Reserve officers, duties of, appointment, promotion and assignment; planned war economy; procurement plans; industrial mobilization.

Methods of Training.—Psychology and its application to military training, preparation of tactical exercises, terrain studies, command post exercises; principles of umpiring.

THE ARMY INDUSTRIAL COLLEGE, WASHINGTON, D. C.

This school was established in February, 1924, and its course is designed to train officers in the useful knowledge pertaining to the supervision of procurement of all classes of military supplies in time of war, and the assurance of adequate provision for the mobilization of material and industrial organization to meet war time needs. The academic year extends from September 1st to the latter part of the following June.

Between forty-five and fifty officers of the Army, Navy and Marine Corps make up the usual class; last year there were fourteen officers of the Navy and Marine Corps in the class which completed the course in June, 1933, and three Marine officers have been designated to the course in the school year 1933-34. The Navy and Marine officers graduating from the course are assigned to material planning in the various bureaus and offices having cognizance of this class of work, thus making their acquired knowledge at once available to the services.

The methods of instruction include lectures, individual and committee problems, and visits to selected industrial plants where methods of manufacture may be observed. The schedule of the course includes:

A study of business problems relating to the service

procurement and writing reports embodying their solution; historical studies of procurement and industrial mobilization during the World War; a discussion of the principles of organization and the relation of planning to operations; studies of the fundamentals of business; study of War and Navy Department organizations authorized by legislation; studies concerning current procurement methods of the supply arms and services; branch activities in planning for war procurement; War Department procurement planning; budgetary control; war reserves; personnel and training; communications; food problems in war time; publicity; war time contract forms; production in the early stages of a war; construction and conversion of facilities; basic industries of the United States; procurement procedure in peace and war; secondary procurements requirements.

Studies of labor, transportation, price control, legal aspects, priorities, economic planning for national defense, control of foreign commerce, financial control agencies, conservation, fuel and power, shipping, trade associations, organization for control of industrial resources in war, industrial readjustment after war.

At the end of the course a war game is scheduled to give the student officers an opportunity to test their own knowledge of the latest plans for procurement and industrial mobilization, and to test the functioning of the organization setup to execute these plans.

Throughout the course lectures on subjects pertinent to the problems being studied are delivered before the students by the instructing staff of the College, and by officers in the office of the Assistant Secretary of War and the Supply arms and services who have had experience in procurement work. Lectures are also delivered from time to time by prominent bankers, economists, educators, and industrialists. Among the latter group are men who held important positions in the War Industries Board and other control agencies during the World War.

THE INFANTRY SCHOOL, FORT BENNING, GA.

The Infantry School was established pursuant to the terms of War Department General Order No. 112, September 25, 1919, which laid out a general plan for Military Education in the Army and directed that "special service schools shall be maintained for each arm of the service." A Board appointed to select a site for the Infantry School considered many possible locations and finally decided that the large tract of land adjoining the

city of Columbus, Ga., and known as Fort Benning possessed unrivaled advantages for the purpose. The tract was large enough for all practical demonstration and training purposes, the terrain is diversified and rivers and streams traverse it. It is partly wooded and partly open and buildings were available for starting the school.

Fort Benning is now a large Army Post with a reenforced Brigade and representative troops from other arms available for demonstration purposes for the school when required.

The stated objects of the Infantry School are:

(a) To teach in detail the tactics and technique of infantry, and to give a working familiarity with the tactics and technique of the associated arms, in order to provide competent leaders for all infantry units and to qualify instructors for the Regular Army, the National Guard, the Organized Reserves, the Reserve Officers Training Corps, and the Citizens Military Training Camps.

(b) To train selected enlisted men as technicians and instructors in the duties of enlisted specialists in the Infantry of the Army.

(c) To serve as an agency of the Chief of Infantry in the development and perfection of infantry tactics and technique.

The Infantry School has two Departments: (a) The Academic Department which conducts the various school courses; and (b) the Department of Experiment which conducts such experiments, tests and research as the commandant of the school may direct.

The school year begins on September 1st and ends on June 15th of the following year. There are four courses for officers of the regular service: (a) The Company Officers' Course; (b) The Advanced Course; (3) The Tank Course; (d) The Refresher Course. The School term for each of these courses, except the Refresher Course, is nine months, the term for the Refresher Course being five weeks.

The Company Officers' Course.—The purpose of this course is to train officers in tactical and technical duties of Infantry to include the Battalion and a brief summary of regimental functions; and in the staff duties of the arm to include the regiment.

The course includes lectures, conferences, committee work, problems, field exercises, marches and maneuvers, practical demonstrations and oral presentations.

The detailed programs of instruction for the course is as follows:

DETAILED PROGRAM OF INSTRUCTION COMPANY OFFICERS' COURSE 1933-1934

| SUBJECTS | HOURS | | | | | |
|--|----------|-------------|----------------|----------------|--------------|-------|
| | Lectures | Conferences | Demonstrations | Practical Work | Graded Tests | Total |
| Animal Management and Transportation | — | 9 | 4 | — | 2 | 15 |
| Command Posts | — | — | 4 | — | — | 4 |
| Equitation | — | — | — | 27 | 3 | 30 |
| Field Engineering | — | 7 | 2 | 9 | 4 | 22 |
| Industrial Mobilization | 1 | 1 | — | — | — | 2 |
| Instructional Methods | — | 1 | 2 | 13 | — | 16 |
| Logistics | — | 4 | 3 | — | — | 7 |
| Medical Service | 1 | 2 | 3 | 2 | 2 | 10 |
| Military History | 16 | — | — | — | — | 16 |
| Signal Communication | — | 11½ | 3 | 88 | 7½ | 110 |
| Motors | — | 38½ | 4½ | 35 | 8 | 86 |
| Organization | — | — | 8 | — | — | 8 |
| Supply | 2 | 7 | 3 | 19 | 6 | 37 |
| Tactics (Including Chemical Warfare Service) | — | 90 | 40 | 219 | 51 | 400 |
| Tank Gunnery | — | 2 | 4 | 22 | 2 | 30 |
| Tank Combat Practice | — | — | 10 | 22 | 3 | 35 |

**DETAILED PROGRAM OF INSTRUCTION
COMPANY OFFICERS' COURSE
1933-1934**

| SUBJECTS | HOURS | | | | | Total |
|---|-----------|-------------|----------------|----------------|--------------|--------------|
| | Lectures | Conferences | Demonstrations | Practical Work | Graded Tests | |
| Tank Reconnaissance | — | — | 8 | 20 | 2 | 30 |
| Topography | 1 | 7 | — | 59 | 10 | 77 |
| Weapons: | | | | | | |
| Antiaircraft (Rifle) | — | 1½ | 2 | 10½ | — | 14 |
| Automatic Rifle | — | — | — | 36 | 2 | 38 |
| Bayonet | — | 2 | 2 | 5 | 1½ | 10½ |
| Combat Practice (Rifle) | — | 2 | 3 | 19 | 4 | 28 |
| Grenades | — | 2 | 2 | 5 | 1½ | 10½ |
| Machine Gun | — | 34 | 17 | 110 | 17 | 178 |
| 37-mm Gun | — | 6 | 1 | 21 | 6 | 34 |
| 3-inch Trench Mortar | — | 5 | 3 | 4 | 3 | 15 |
| Rifle Marksmanship | — | 2 | 2 | 15 | 1 | 20 |
| Pistol Marksmanship | — | 1 | — | 10 | 1 | 12 |
| Musketry | — | 4 | 4 | 19 | 3 | 30 |
| Corps Area Maneuvers | — | — | — | 80 | — | 80 |
| At the disposal of the Assistant Commandant | — | — | — | — | — | 22 |
| TOTALS | 21 | 239½ | 134½ | 869½ | 140½ | 1,427 |

The Advanced Course.—The purpose of this course is to train officers in tactical and technical duties, both command and staff, to include the larger units of the arm; and to train officers in the tactics and technique of other

arms and in the combined employment of the associated arms.

The detailed program of instruction for the course is as follows:

**DETAILED PROGRAM OF INSTRUCTION
ADVANCED COURSE
1933-1934**

| SUBJECTS | HOURS | | | | | Total |
|--|-----------|-------------|----------------|----------------|--------------|--------------|
| | Lectures | Conferences | Demonstrations | Practical Work | Graded Tests | |
| Animal Management and Transportation | — | 2 | 2 | — | — | 4 |
| Equitation | — | — | — | 27 | 3 | 30 |
| Field Engineering | 1 | 11 | — | 2 | 4 | 18 |
| Industrial Mobilization | 1 | 1 | — | — | — | 2 |
| Instructional Methods | — | — | 2 | — | — | 2 |
| Logistics | — | 19 | 3 | — | 6 | 28 |
| Medical Service | 1 | 2 | 3 | 2 | 2 | 10 |
| Military History | 8 | 3 | — | 61 | — | 72 |
| Motors | — | 38½ | 4½ | 35 | 8 | 86 |
| Organization | — | — | 8 | — | — | 8 |
| Command Posts | — | — | 4 | — | — | 4 |
| Signal Communication | — | 4 | 4 | — | — | 8 |
| Supply | 2 | 12 | 3 | 35 | 12 | 64 |
| Tactics (Including Chemical Warfare Service) | 15 | 120 | 47 | 516 | 81 | 779 |
| Tank Gunnery | — | 2 | 4 | 22 | 2 | 30 |
| Tank Combat Practice | — | — | 10 | 22 | 3 | 35 |
| Tank Reconnaissance | — | — | 8 | 20 | 2 | 30 |
| Topography | 2 | 5 | — | 27 | 3 | 37 |
| Weapons | — | 2 | 20 | — | — | 22 |
| Corps Area Maneuvers | — | — | — | 80 | — | 80 |
| At the disposal of the Assistant Commandant | — | — | — | — | — | 22 |
| TOTALS | 30 | 321½ | 122½ | 849 | 126 | 1,371 |

The Tank Course.—The purpose of the course is to train officers in the mechanical and technical duties pertaining to tank units, including the operation and maintenance of all types of motor vehicles included in the equipment of tank units.

The Refresher Course.—The purpose of the course is to afford senior officers a general review of the tactics and technique of infantry and tank units and to familiarize them with the most recent developments of infantry weapons, training and tactics.

**DETAILED PROGRAM OF INSTRUCTION
TANK COURSE
1933-1934**

| SUBJECTS | HOURS | | | | |
|---|------------------|---------------------|-------------------|-----------------|------------|
| | Confer- ences | Demon- strations | Practical Work | Graded Tests | Total |
| Motors | 95 | 23 | 234 | 30 | 382 |
| Tank Chassis | 35 | — | 74 | 6 | 115 |
| Tank Driving | 6 | — | 25 | — | 31 |
| Truck Chassis | 33 | — | 119 | 8 | 160 |
| At the disposal of the Assist. Commandant | — | — | — | — | 12 |
| TOTALS | 169 | 23 | 452 | 44 | 700 |

The Cavalry School of the U. S. Army is located at Fort Riley, Kansas. It was originally established in 1891 under the name of the Mounted Service School for the instruction of mounted officers of the Cavalry and Field Artillery in drill and tactics. When the War Department, in June, 1919, decided to establish a service school for each arm of the service the Mounted Service School was transformed into the present Cavalry School.

Fort Riley, the largest Cavalry post in the United States, was established by order of the War Department,

June 27, 1853, on the site then occupied by Camp Center which commanded an important crossing of the Kansas River. The post was named in honor of Major General Bennett Riley, U. S. Army, who was born at Alexandria, Va., in 1787, entered the Army as Ensign of Rifles in 1813, and died at Buffalo, N. Y., in 1853. He saw much service in the early days of the West and commanded the escort over the "Santa Fe Trail" in 1829. He served with distinction in the Florida War and in the Mexican War. Fort Riley is now equipped as a station for a Brigade of Cavalry with attached troops and with the necessary offices, buildings and quarters for the Cavalry School.

From the experience of the Marines in the employment of Mounted Companies of Marines in the expeditionary campaigns in China, Haiti, Santo Domingo, and Nicaragua it appeared advisable to detail some Marine officers to take the courses at the Cavalry School and in 1929 the first officer was so detailed.

The Mission assigned to the Cavalry School by the War Department is "to train competent leaders of cavalry units and provide instructors for the Regular Army, National Guard, Organized Reserves, Reserve Officers Training Corps and Citizens Military Training Camps."

The following courses for commissioned officers are conducted at the Cavalry School: Advanced Course, Troop Officers Course, Advanced Equitation Course, and Refresher Course. The school term is from September 10 to June 20, and the instruction is divided into four departments, as follows: Weapons, General Instruction, Horsemanship, and Tactics.

The Advanced Course.—The purpose of this course is to instruct officers in the training and leading of the squadron and regiment, both horse and mechanized, and the brigade, and in the command and staff features of the Cavalry Division and of the Cavalry Corps; to study the employment of the combined arms in forces up to and including the reenforced Infantry Brigade and to produce qualified Cavalry instructors for duty with the various components of the Army.

To insure logical and progressive instruction the tactical course is divided into three phases as follows:

First Phase.—September 10 to November 11; instruction devoted to the tactics and technique of Cavalry involving minor decisions for units up to and including the regiment with armored cars attached. Special stress will be laid upon the employment of Cavalry weapons and the auxiliary arms in order to provide a background for progressive instruction in these weapons and arms.

The greater part of this instruction will be carried on outdoors and will include practical work on the range with weapons, and a demonstration march of a reenforced brigade, to illustrate march principles, minor tactics, and Cavalry supply in the field.

This phase is intended to be a review of the work with small units for the advanced class to bring these students up to date in recent development in Cavalry tactics and technique, and to prepare them for progressive instruction involving larger Cavalry units, both horse and mechanized, and in making major decisions involving these units.

Second Phase.—November 11th to April 11th. This part of the tactical course given in the winter season includes the greater part of the theoretical work given in the course. Instruction involving the larger units is taken up in conferences and major decisions are required in practical exercises, map problems and map maneuvers. Command and staff, mechanized Cavalry, logistics, mili-

tary history and research, technique of instructing and lecturing, and training management, are covered in this period in order to free the students for outdoor practical work during the Third Phase. The objective of this phase is to prepare the student for the Third Phase, in which he is required to perform the command and staff duties of the Reenforced Cavalry Brigade, and to possess a general knowledge of the Staff duties of the Cavalry Division and Corps.

Third Phase.—April 11th to May 30th. This period is devoted principally to outdoor work in tactical rides, terrain exercises, field exercises, marches and maneuvers, in which the student reviews the theoretical instruction given in the different major subjects. It serves as a test of the officer's ability to apply practically the tactical principles covered under the various subjects comprising the course.

The course embraces conferences, command post exercises, demonstrations, lectures, map problems, practical exercises, practice map problems, tactical rides, terrain exercises, field exercises, field maneuvers, tests, map maneuvers, general instruction and horsemanship instruction.

Summary of the Course.—Opening exercises and outline of the course.

Department of Tactics: Employment of Cavalry; security and information; map reading and aerial photography; preparation of tactical exercises; leadership of small units; solution of map problems; combat, including troop leading; special operations; antiaircraft; command and staff; logistics; other arms; field fortifications; mechanized Cavalry including armored cars; armored cars with horse Cavalry; signal communications.

Department of Weapons: Cavalry weapons including machine guns and 37mm guns, and their employment against both ground and aerial targets; pack transportation; the technique of armored vehicles; pioneer and demolition duties; marksmanship with pistol and rifle.

Department of General Instruction: Army of the U. S.; training management; Military in domestic disturbances; Technique of instructing and lecturing; military history and research; extension courses; mobilization.

Department of Horsemanship: Horsemanship; animal management; horseshoeing; Use of weapons mounted.

THE FIELD ARTILLERY SCHOOL, FORT SILL, OKLAHOMA

This school is located at Fort Sill, Oklahoma. The objects of the course are, as to officers, to teach in detail the technique and tactics of all units and tactical groupings of field artillery; to give a working familiarity with the technique and tactics of the associated arms and services in order to provide competent leaders for all field artillery units; to qualify instructors for the Army, National Guard, Organized Reserves, Reserve Officers Training Corps, and Citizens Military Training Camps; and to serve as an agency of the Chief of Field Artillery in the development and perfection of field artillery technique and tactics.

The Battery Officers' Course.—The duration of the course is nine months from September to June. The four departments of the school are: Department of Animal Transport, Department of Gunnery, Department of Materiel, and Department of Tactics and Communication. The program of the departmental instruction is divided as follows:

1. *Department of Animal Transport.*—Driving and

draft, nomenclature and use of harness; conduct of marches, 3-day march under field conditions with students driving and performing pertinent functions; Equitation, riding and general horsemanship, complete training of one remount; Animal management, breeds and types of horses, shoeing, care in garrison and the field, care of animals; prevention of injury and disease.

2. Department of Gunnery.—Transfers and schedule fires, theoretical instruction, concentrations, standing and rolling barrages; Conduct of fire, instruction in all methods ground and air; Firing battery, theoretical and practical instruction in the organization of the firing battery and duties of personnel, firing commands, methods of laying the battery; Service practice, practical demonstrations by instructors, practical conduct of fire by students, transfers of fire critiques; General gunnery, elementary ballistics, probability and dispersion; Preparation of fire, theoretical and practical instruction in the use of instruments, maps and map reading, surveying operations, use of firing tables, corrections, preparation of fire by all methods including rapid and deliberate, air photographs and night work; Simulated firing, practical conduct of fire by blackboard, terrain board and smoke puff.

3. Department of Materiel.—Materiel, theoretical and practical instruction in sights, ammunition, guns and carriages; Motors, automotive design and operation, vehicles used by field artillery, practical work in their care, maintenance and operation; three day march of motorized artillery under field conditions with students driving and performing all pertinent functions.

4. Department of Tactics and Communication.—Associated arms, practical and theoretical instruction in the infantry company and battalion in security detachments, in attack and defense; Chemical agents, methods of projection and protection against, organization and employment of cavalry; Signal communications, means used in field artillery, battery, battalion, regimental and brigade communication; cryptography; military messages, message center operation; telephone; buzzer and semaphore practice; radio equipment, procedure and operation; Methods of training, technique of training, preparation of a battery training program; Artillery intelligence, intelligence journal and enemy situation map, bulletins and reports, camouflage, air photographs, flash and sound ranging, duties of intelligence and liaison officers; Logistics, organization of the theatre of operation for supply, supply functions of artillery units, ammunition supply, administrative orders, march tables, entraining and detraining artillery; Combat orders, principles, technique, types, field orders for all artillery units, fragmentary, oral and dictated orders; Staff duties, duties of artillery staff officers, instruction by conference, map problem, map maneuver and field exercise; Artillery tactics, organization, reconnaissance, selection and occupation of position, class instruction followed by forty-eight battery problems, the battery and battalion of light and medium field artillery in security detachments, in attack, in defense, in special operations; Organization, artillery organization to include the brigade.

The Advanced Course.—This course occupies nine months from September to June. Its scope includes the field artillery battalion to the field artillery brigade inclusive; division, corps, army and G. H. Q. artillery with special field artillery staffs pertaining thereto; the tactics and technique of other branches to such extent as is essential to sound field artillery training; the combined employment of such branches in units smaller than the

division. The subjects are divided among the four departments above mentioned.

The Refresher Course.—This course occupies a term of two months and is designed as a review for officers who have previously taken the long courses to meet the special needs of the individual student. The student is at liberty to vary the schedule to suit his individual needs and to derive the maximum benefit in the limited periods of the course.

THE COAST ARTILLERY SCHOOL, FORT MONROE, VA.

This school is located at Fort Monroe, on Hampton Roads, Va. Its Staff consists of a Commandant (who is also the Artillery District Commander), an Assistant Commandant, a Secretary, a Librarian, five directors and twenty-three Instructors (20 Coast Artillery, 1 Infantry, 1 Cavalry and 1 Air Corps). It is the oldest of all of the schools which now form a part of the Army Educational System with the exception of the U. S. Military Academy at West Point, N. Y.

The school has five departments as follows: (1) Department of Tactics, (2) Department of Artillery, (3) Department of Engineering, (4) Department of Extension Courses, and (5) Department of Enlisted Specialists.

The school has two divisions, the Officers' Division and the Enlisted Division. In the Officers' Division there are two courses for regular officers, I. The Advanced Course, and II. The Battery Officers' Course.

I. The Advanced Course.—The Purpose of the Advanced Course is, "To train Field Officers of the Coast Artillery in the organization, tactics and technique of all classes of artillery assigned to the Coast Artillery Corps, and in the organization and tactical employment of the associated arms to include the reinforced brigade; to provide qualified staff officers and senior instructors for the Coast Artillery."

The course occupies nine months from September to June of each year.

Since officers of the Marine Corps are not assigned to take the Advanced Course at this school the details of the course are not given here.

II. The Battery Officers' Course.—The purpose of this course is as follows: "To provide battery commanders trained in their technical duties; to instruct battery officers in the basic tactical principles involved in the battery, group or battalion of artillery with a view to providing the groundwork for future technical and tactical study and research; to indoctrinate the Coast Artillery Corps, through the battery officers, in the latest approved methods of artillery technique; and to provide competent instructors for the Coast Artillery."

The course occupies nine months from September to June of each year.

The course is divided into the following subjects: Basic Gunnery, Seacoast Artillery Materiel and Gunnery, Antiaircraft Materiel and Gunnery, Battle Practice Period, Military Topography, Military Field Engineering, Motor Transportation, Electrical Materiel, Orientation, Submarine Mining, Organization Tactics and Technique, General Conferences, and Equitation.

The following synopsis of the instruction embraced under the different subjects gives a general outline of the course.

1. Basic Gunnery.—Elements of interior and exterior ballistics; proving ground methods; limitations of fire; gun differences and parallax; pointing methods; prep-

eration of fire; principles of probability; dispersion and errors; adjustment of fire.

2. *Seacoast Artillery Materiel and Gunnery*.—History of artillery; fixed, railway and heavy tractor artillery material; pointing; sights, quadrants and position finders; ammunition; armor attack; identification of naval targets; effect of fire; conduct of fire; preparation of fire against naval targets; delivery, observation and adjustment of fire; conduct and analysis of target practice; target practice with different types of seacoast artillery with Air Corps cooperation.

3. *Antiaircraft Artillery Materiel and Gunnery*.—Antiaircraft materiel, ammunition, guns, automatic weapons, data computers, height finders, searchlights, sound locators and accessories; antiaircraft position finding; antiaircraft gunnery for guns and automatic weapons; practical conduct of target practice and searchlight exercises with Air Corps cooperation.

4. *Battle Practice Periods*.—32 hours in all.

5. *Military Topography*.—Reading military maps; field work in military sketching; examination and interpretation of aerial photographs.

6. *Military Field Engineering*.—Theory and practice in the erection and use of camouflage; review of field works and emplacements.

7. *Motor Transportation*.—Principles of gasoline engines; operation, care and maintenance of Army motor transportation; gas and oil engines used in fortification power plants.

8. *Electrical Materiel*.—Fundamental electrical principles; study and use of electrical equipment of all classes used in connection with Coast Artillery fortifications fixed and movable; fire control systems; searchlights; transmission and transformation of electrical energy to meet artillery needs.

9. *Orientation*.—Instruments, projections and coordinates; azimuth determination; traverse; intersectional resection; determination of battery positions; construction and application of grids; duties of reconnaissance officers.

10. *Submarine Mines*.—Principles of mine defense; construction, operation, storage, and preservation of mine materiel; mine and submine practices; analysis of mine practice.

11. *Organization, Tactics and Technique*.—The combined arms in Coast Defense; joint action of Army and Navy in Coast Defense; Seacoast artillery and methods of training; organization and tactical employment of artillery defenses fixed and mobile; harbor and beach defense; tactical characteristics of weapons; training orders, programs and schedules.

12. *Antiaircraft Artillery*.—Organization, tactics and technique of antiaircraft artillery; tactical characteristics of weapons and of aerial targets; staff duties.

13. *Field Artillery*.—Organization, tactics and technique of units of field artillery to include the battalion; combat orders.

14. *Air Corps*.—Organization, tactics and technique of Air Corps units.

15. *Chemical Warfare Service*.—Chemical agents and weapons; employment of chemicals in Coast Artillery; protection against chemical attack.

16. *General Conferences*.—Wednesday afternoon; the purpose of the course being to afford an opportunity for practice in public speaking; to stimulate interest in the cultural side of the student's education and to cover special subjects.

17. *Equitation*.—Practical instruction in riding, in-

cluding elementary equitation, stable management and horse shoeing.

U. S. ARMY AIR CORPS TECHNICAL SCHOOL, CHANUTE FIELD, RANTOUL, ILL.

This school is located at Chanute Field, Rantoul, Ill., and it conducts eight courses for officers, four of which are for officers of the regular services, as follows: 1. Officers' Airplane Maintenance Engineering Course; 2. Officers' Armament Course; 3. Officers' Communication Course; 4. Officers' Photographic Course. The details of these courses are as follows:

1. *Officers' Airplane Maintenance Course*.—The scope of this course covers construction, repair and maintenance of airplanes, airplane engines and parachutes; care and use of materials, tools and equipment used in repair shops and hangars; the duration of the course is nine months. The program includes machine shop practice with lathes, milling machines, shapers and grinding machines; Welding, oxy-acetylene welding, radiator and sheet metal work; Airplane wires and metals and elements of metal work; Airplane woods and elements of woodwork; Airplane covering and finishing; Airplane instruments, their construction, tests and maintenance; Airplane propellers, their construction, repair and maintenance; Airplane construction and repair; Airplane rigging and theory of flight; Airplane engine construction and repair, assembly, disassembly and adjustment; Airplane engine ignition and starting systems, batteries, generators, and starters; Fuels, lubricants, carburetion and superchargers; Airplane engine testing and trouble finding; Airplane engine installation, operation and maintenance; Parachutes, their construction, maintenance, repair and use; Airplane development, including an inspection tour to the Materiel Division, Wright Field, Dayton, Ohio.

The course includes lectures, demonstrations, practical work, and problems.

2. *Officers' Armament Course*.—The scope of this course covers construction principles, repair, maintenance and inspection of aircraft armament and accessories, and its duration is six months. The program includes: Airplane wires and metals and elements of metal work; Aircraft machine guns, description, nomenclature, operation, care and maintenance; Machine gun synchronizers, description, nomenclature, operation and care; Machine gun sights and gun cameras, description and operation; Small arms, care, use and maintenance; Aircraft projectiles and explosives, military explosives, commercial explosives; description, care and operation of bombs and fuzes used by aircraft; internal bomb ballistics; Bomb and flare racks and releases; Bomb sights and camera obscura; Chemical warfare materials, weapons, supply, technique and tactics; Armament development, including visits of inspection of activities concerned with the developments of armament.

3. *Officers' Communication Course*.—The scope of this course embraces the instruction of officers in the technique of Air Corps signal communication and in the duties of the Air Corps communication officers and the duration of the course is nine months. The program includes: International code, typewriting, radio procedure and Air Corps radio nets, code practice up to 25 words per minute, radio laws and regulations of the United States; General radio theory, electricity and magnetism; shop work and tools, their care and use; Batteries, generators, motors, power boards and transformers, theory, operations and maintenance; Vacuum tubes, typical

transmitting and receiving circuits; Applied theory to diagrams of Air Corps Sets; Duties of Air Corps communication officers, supervision of communication personnel, administration and reports; Field telephones and switch boards, operation and maintenance; Airplane radio installation, airplane radio missions, radio beacon lights and interplane communication; Airplane radio sets and equipment, theory, operation, maintenance, test and repair; Post radio set equipment, theory, installation and maintenance; Practice flying, including day and night flying, radio test flights, radio navigation missions, radio beacon flying and interplane communication flights.

4. *Officers' Photographic Course*.—The scope of this course includes aerial and ground photography and the duration of the course is nine and a half months. The program of the course includes: Principles of photography; Negative making processes; Photographic chemistry; photographic printing processes; Lantern slide making; Photographic optics; Cameras, operation, installation and maintenance; Practical ground photography; Copying drawings, etc.; Filters, theoretical and practical work; Mosaic making and photo-topography; Organization and operations of a Photo Section; Elementary photography; Practical aerial photography; Military use of aerial photographs; Photographic interpretation and aerial intelligence; Mosaic copying to scale.

U. S. ARMY AIR CORPS TACTICAL SCHOOL, MAXWELL FIELD, MONTGOMERY, ALA.

The Regular Course at this school covers the instruction which is necessary to qualify Regular Army Officers in the command and staff functions of all echelons of military aviation. The duration of the course is nine months from September to June, inclusive. The course is made up of lectures, quizzes, conferences, illustrative problems, map problems and map maneuvers, and includes practical flying problems and exercises.

The course is divided into subcourses as follows:

(1) *Air Force*.—Combined employment of pursuit, attack, bombardment and observation aviation in various situations; dealing in large units only; covering command and staff work. This course covers the logical consideration of all factors which must be considered in arriving at an air estimate of the situation.

(2) *Air Navigation*.—Brief practical and theoretical course to instruct the student in the fundamentals of air navigation.

(3) *Antiaircraft*.—Antiaircraft material of our own and foreign nations; tactical employment of antiaircraft artillery units in conjunction with other arms.

(4) *The Army of the United States*.—A series of lectures covering the history of the U. S. Army.

(5) *Attack Aviation*.—Function, organization, materiel, combat principles, employment, combat orders and training of attack aviation.

(6) *Balloons and Airships*.—Function, organization, material, combat principles, employment, combat orders and training of lighter-than-air aviation.

(7) *Bombardment Aviation*.—Functions, organization, material and principles of bombardment aviation.

(8) *Cavalry*.—The organization and employment of cavalry.

(9) *Chemical Warfare Service*.—Consideration of the employment of chemical agents, chemical weapons, and the use of chemicals by all arms.

(10) *Coast Artillery*.—A lecture to acquaint the student with the organization, employment of coast artillery.

(11) *Combat Orders*.—Principles of the composition of combat orders and the application of these principles.

(12) *Combined Arms*.—To illustrate the inter-relationship of the various arms and services forming the basic unit of the combined arms, the Infantry Division, and to provide a broad foundation for the study of air operations.

(13) *Engineer Corps*.—The general organizations and functions of this branch of the service.

(14) *Extension Courses*.—Lectures covering the purpose, scope and methods of extension courses of the various service schools.

(15) *Field Artillery*.—The general principles of the organization, combat principles and weapons of field artillery.

(16) *Field Fortifications*.—Utilization of the ground for defense; methods of planning, laying out and constructing field fortifications.

(17) *Infantry*.—Organization, weapons and combat principles of infantry.

(18) *International Aerial Regulations*.—International regulations applicable to air warfare; laws and regulations as they relate to aeronautics.

(19) *Air Logistics*.—Supply and movements of air units to and within the theatre of operations.

(20) *Logistics (Ground)*.—The principles of supply and movements applicable to ground units.

(21) *Maps and Photographs*.—Reading and use of military maps; making and use of aerial photographs.

(22) *Medical Corps*.—The principles covering the organization of units of the Medical Corps.

(23) *Military Geography and Strategy*.—Lectures developing an analysis of military strategy based upon studies of outstanding military campaigns.

(24) *Military Intelligence*.—Principles and organization of the intelligence system in war.

(25) *Military Organization*.—The principles of territorial and large tactical military organization both for operation and administration.

(26) *Mobilization*.—Lecture on the principles and details of the War Department General Mobilization Plan.

(27) *Naval Operations*.—Lectures covering the organization, equipment and operation of naval forces including naval aviation.

(28) *Observation Aviation*.—Function, organization, materiel, combat principles, combat orders, and training of observation aviation.

(29) *Ordnance Department*.—Lecture on the organization and function of the Ordnance Department.

(30) *Orientation*.—A lecture giving a broad general picture upon which a detailed study of the separate arms may be based.

(31) *Preparations of Map Problems*.—Training in preparation of map problems.

(32) *Public Speaking*.—Lecture on the important features of public speaking.

(33) *Pursuit Aviation*.—Function, organization, materiel, combat principles, employment, combat orders, and training of Pursuit Aviation.

(34) *Quartermaster Corps*.—Lecture on the organization and functions of the Quartermaster Corps.

(35) *Signal Communication*.—Principles of signal communication for all arms.

(36) *Solution of Problems*.—Instruction in the mechanism and methods of solving problems.

(37) *Staff Duties*.—Principles of staff organization and procedure.

(38) *Troop Leading*.—Illustrating the actions which must be taken by commanders and staff officers which have a bearing on the time element in all decisions.

(39) *World War*.—Lecture course on causes of and the operations during the World War, including employment of aviation.

QUARTERMASTER CORPS SUBSISTENCE SCHOOL, CHICAGO, ILLINOIS

The Quartermaster Corps Subsistence School, operated by the U. S. Army at 1819 West Pershing Road, Chicago, Illinois, is designed to train and qualify officers of the Armed Forces of the United States as Subsistence Specialists by thoroughly acquainting them with the origin, production, manufacture, procurement, inspection, shipment, storage, preservation, sale, issue of and accounting for subsistence supplies and forage of all kinds. Its purpose is to familiarize its students with the latest and best methods of production, procurement, preservation and preparation of all foods in order to better fit them to function as Quartermasters and Supply Officers in the purchase, shipment, storage, preservation and preparation of all subsistence supplies. Instruction in nutritional values, menu planning and mess management is also included in the curriculum. The student officers are detailed to the course from the Army, Navy and Marine Corps. The school was founded twelve years ago.

The academic year extends from September 1st to May 31st each year, during which period instruction is given in sixteen separate and distinct courses devoted entirely to subsistence supplies. Instruction is both practical and theoretical, including lectures by the school staff and business and technical experts, conferences, demonstrations, examinations, and visits of inspection and instruction to representative mills, factories, and canneries. Of the total of 1,098 hours of instruction given during the normal school year, 712 hours are devoted to practical, and 386 hours to theoretical instruction. For example, 189 hours are devoted to Flour and Associated Products; 189 hours to Packinghouse Products (Meats of all kinds); 100 hours to Coffees and Teas; 96 hours to Canned Fruits and Vegetables; 90 hours to Forage (grains, hay and animal nutrition); 84 hours to Dairy Products and 84 hours to Nutrition and Messing. Each class not only tests and analyzes milk, butter, cheese and ice cream, but studies the various breeds and types of dairy cattle, visits dairy farms, fresh milk establishments, creameries, dry powdered, whole, and skim milk factories, evaporating plants, cheese factories, and ice cream factories as well as wholesale markets, jobbing establishments and cold storage depots where these products are stored and sold; and even actually make American cheddar cheese in the school laboratory. Each class makes a four-day tour of inspection of fruit and vegetable canneries in operation in nearby states during the autumn, and of dairy farms, dairies, creameries, evaporating plants, dry milk factories, cheese factories, ice cream plants and cold storage depots in Wisconsin during the spring, incident to the canning course and dairy products instruction. The class has absolutely free access to all establishments in Chicago's Packingtown, and devotes approximately three months to the study of Packinghouse products, starting with the various meat animals in the receiving pens and following them through the slaughtering rooms, cutting rooms, smokehouses, chill rooms, and sharp freezers,

into the can or on to the block. Every phase of the industry is studied, including all of the countless by-products.

Chicago, virtually the food center of the nation, affords unlimited opportunities for the students to study the production, marketing and storage of all sorts of foodstuffs at first hand. The various producers, manufacturers, millers, packers, canners, jobbers and wholesalers of foodstuffs located in the Chicago area are alert to the mutual benefit and advantages derived from the education of prospective Government purchasing, inspection and storage officers to the end that they may readily recognize quality and value in food products; and they willingly lend their wholehearted cooperation and assistance to the School without charge.

Near the end of the course in Nutrition and Messing each class takes over the management and operation of a ninety-man enlisted men's mess, actually preparing all of the food consumed by the mess during the period of one month, including bread, cakes and pastry. Students are concerned not only with the proper preparation of the food, the cost and accounting for the supplies used, but are also required to plan balanced meals and compute the nutritional value of the various menus served.

The School studies current Federal specifications for subsistence supplies, and makes recommendations concerning revisions of same. Local Quartermasters and purchasing officers are permitted to submit samples for analysis and examination by the school to determine whether they meet the requirements of current Federal Specifications. The School is charged with making nutritional studies, and compiling data upon recipes and balanced menus as well as disseminating information as to the best methods of utilizing the various ration components.

During the school year each student is required to prepare a monograph upon a subject connected with subsistence and the work of the school. This monograph is in the nature of a problem in practical research.

Since its establishment the school has done much to increase the efficiency of the Quartermaster and Supply Officers of the Army, Navy and Marine Corps in the purchase, inspection, shipment, storage, preservation and use of subsistence supplies.

QUARTERMASTER CORPS MOTOR TRANSPORT SCHOOL, HOLABIRD QUARTERMASTER DEPOT, BALTIMORE, MD.

This school is located at Holabird Q. M. Depot, U. S. Army, Baltimore, Md., the site of the largest motor transport shops in the Army. The school, the shops and the other activities are all utilized for the benefit of the students.

The purposes of the school are to give to its students a thorough training in the fundamentals of the operation of motor transportation, including operations in military organizations and in the tactics and technique of the separate arms and services and larger military units; operation in correlation with other forms of transportation; a thorough training in the fundamentals of motor vehicle maintenance and repair.

There are several courses at the school with different objectives; the principal course for officers being known as the Officers' Regular Course, which covers a period of about nine months from the middle of September to the middle of June. This course is given for the officers of the Regular Army, National Guard, Organized Reserves, and U. S. Marine Corps.

The instruction in this course consists of lectures, demonstrations, conferences, problems, and practical work in various departments of the motor transport shop and in vehicle operation. Sufficient practice in the use of tools and the repair of vehicles and their component parts is given to enable the student to intelligently supervise work in the field. Shop management, unit replacement and traffic control are also covered. At the completion of the course the class is taken on a practice convoy which is designed to give them actual experience in use of vehicles and fleet operation on the road.

The courses and subcourses in the Officers' Regular Course are as follows:

Department of Administration.—General, Military Transportation Service, Automotive Engineering, and War Planning.

Department of Operations.—General; Operating Organizations; Operation of Motor Vehicles; Operation of Motor Transportation; Motor Transport Management, and Training Methods.

Department of Maintenance.—General; Maintenance Organizations; Maintenance Installations; Maintenance Management; Supply Methods; Repair Methods; Production Control; and Inspection Methods.

Department of Automotive Mechanics.—General; Hand tool work; the Power Plant; Accessories Units; Power Transmission Units; Springs; Engine Testing; Trouble Shooting; Chassis Repair.

Department of Allied Trades.—General; Blacksmithing; Machine Tool Work; Welding; Sheet Metal and Radiator; Woodworking and Body Building; Trimming and Upholstering; Painting; Tire Repair; Storage Batteries.

In addition to the above regular course for officers there are Officers' Advanced Courses to meet special requirements, and Officers' Special Courses which are given for special details of officers when required.

THE CHEMICAL WARFARE SCHOOL, EDGEWOOD ARSENAL, MD.

The Chemical Warfare School was established at Lakehurst Proving Ground, Lakehurst, N. J., and the first class graduated March 31, 1920. In September the school was moved to the present location at Edgewood Arsenal on Chesapeake Bay, twenty miles northeast of Baltimore, Md.

Upon the entry of the United States into the World War it became necessary for the government to establish a plant for the manufacture of the material required by the newly founded Chemical Warfare Service, then a branch of the Ordnance Department of the Army. At a cost of \$35,000,000 this arsenal was built and is now the main station for the manufacture of chemical warfare material and the training of such personnel as this service requires. At this post are located, in addition to the Arsenal, the Chemical Warfare School, the Chemical Warfare Depot, and the First Chemical Regiment. Adjoining the Arsenal is Fort Hoyle, the Brigade Post of the Field Artillery.

The objects of the school are the dissemination of information concerning the tactics and technique of chemical warfare, the training of Chemical Warfare Service personnel in the duties of their branch of the Army, the training of the personnel of other branches of the Army to act as unit gas officers and instructors in chemical warfare, and the training of the officers of such other branches and services as will insure coordinated and

effective use of chemical troops, agents and weapons in combat.

To accomplish its mission the school has established courses as follows: the Line and Staff Officers' Course, the Field Officers' Course, the Unit Gas Officers' Course, Navy Course and Special Courses.

Line and Staff Officers' Course.—This course is prescribed for officers of branches other than the Chemical Warfare Service, and its mission is to give officers of these other branches an understanding of chemical warfare which will enable them to command their units with the greatest efficiency in this phase of war. The duration of the course is twelve weeks.

Field Officers' Course.—This course is designed to give senior field officers of branches other than the Chemical Warfare Service a broad picture of chemical warfare, its uses and capabilities, and a general knowledge of chemical warfare for the supervision of training and coordination of the use of chemical agents in the operations of their branches. The duration of the course is four weeks.

Unit Gas Officers' Course.—The object of this course is the proper training to fit officers for duty as battalion and regimental gas officers.

Navy Course.—The object of this course is to train Naval officers in the phases of chemical warfare applicable to their service. The duration of the course is six weeks.

Special Courses.—These are conducted from time to time as required by special conditions in the Chemical Warfare Service or other branches.

Subjects Included in the Courses.—The following subjects are included in all of the courses; Chemical Warfare Agents, Chemical Weapons, Weather, Tactics and Technique of Separate Branches, Chemical Warfare Tactics, Protection against Chemical Warfare Agents, General Subjects, Training, Student Monographs.

Chemical Warfare Agents.—Includes sufficient fundamental physics and general chemistry to enable students to understand the relation between the physical properties of agents and their behavior in the field.

Chemical Warfare Weapons.—Covers the construction and operation of chemical weapons and ammunition used in the Chemical Warfare Service or in other branches.

Weather.—To make the student familiar with the effects of weather elements on chemical warfare; includes instruction in the use of weather maps and instruments and determination of local weather conditions, such as wind direction and velocity and temperature.

Tactics and Technique of Separate Branches.—Includes so much of tactics and technique of separate branches as is necessary to an understanding of the constitution and operation of the combatant arms and to coordinate the use of chemical agents, weapons and troops with the operations of other troops in tactical situations.

Chemical Warfare Tactics.—To familiarize the student with chemical warfare tactics and their application to different situations, including organization, equipment, functions and tactical operations of chemical troops; chemical warfare supply and logistics; chemical warfare tactics by other branches; smoke tactics, map problems, terrain exercises, and field demonstrations.

Protection Against Chemical Warfare Agents.—To familiarize students with all protective devices and measures both individual and collective; includes the principles governing the design and construction of gas

masks, their manufacture and repair, fitting the mask, gas mask drill; gas intelligence and reconnaissance; first aid to gas casualties.

General Subjects.—Includes subjects of such general nature as pertain to the entire subject of chemical warfare rather than to a specific phase.

Training.—Designed to familiarize the student with the agencies and facilities for chemical warfare training, the duties of training officers, and methods of instruction.

Student Monographs.—Each student is required to write a monograph on some phase of chemical warfare. These monographs are reviewed by the Faculty of the School with a view to obtaining new ideas and opinions on chemical warfare.

THE U. S. ARMY SIGNAL SCHOOL, FORT MONMOUTH, N. J.

The Signal School is located at Fort Monmouth, N. J., the Signal Corps Post four miles northwest of Long Branch, N. J. The objects of this school are as follows:

To instruct and train officers of the Signal Corps in technical and tactical subjects pertaining to that arm; to instruct and train officers of other arms and services in essential signal communication subjects; to standardize methods of instruction in signal communication; to prepare and revise training literature of primary application to the Signal Corps.

Several courses designed for the training and instruction of officers and enlisted personnel are provided at the school. The principal courses for officers are the Company Officers' Course and the Communication Officers' Course. The school term for officers begins September 1st and ends June 15th.

The Company Officers' Course.—In this course the subcourses are as follows: (1) Electricity and Magnetism.—The fundamental principles of magnetism, direct and alternating currents; operation and maintenance of storage batteries and charging equipment. This subcourse consists wholly of laboratory exercises and reading assignments.

(2) Wire Telegraphy.—The study of single-line telegraph and simple duplex circuits; the service buzzer, buzzer-phone and simplexing; the simplex printer.

(3) Wire Telephony.—The study of material and circuits used in field systems; the locations of faults; the Strowger automatic telephone system; and a study of telephone engineering from the American Telegraph and Telephone Company's specifications.

(4) Radio Telegraphy and Telephony.—Study of the simpler radio-frequency phenomena, vacuum tubes and their associated circuits, antenna and power equipment. This subcourse concludes with a detailed study of the Signal Corps radio sets in common use, the location of faults in these sets, and the installation of a suitable type as a fixed radio installation.

(5) Motor Transportation.—Includes the use and care of hand tools, care and inspection of motor transport materiel, and the conduct of convoys.

(6) Basic Shop Work.—The use of common shop tools and the working of materials is taught.

(7) Technique of Radio Communication.—The installation and operation of tactical radio sets in the field with special attention to types of sets used in the officer's own arm. Exercises in radio communication between airplanes and ground stations.

(8) Technique of Wire Communication.—The installation and operation of field wire systems, with special

attention to equipment and methods used within the Division.

(9) Training Methods.—Instruction in the training of signal communication personnel; training management; methods of instruction; training objectives; training of individual specialists; training of teams; and unit training.

(10) Tactics and Technique of the Arms.—Study of the tactics and technique of the different arms, with special reference to their operation within the Division.

(11) Tactics and Technique of Signal Communication.—The employment of signal communication troops in tactical operations. The influence of the tactical situation on the plan of signal communications is emphasized. Instruction is given mainly by map problems.

(12) Army Organization.—The general war strength organization of the arms with special reference to the organizations of signal communications units.

(13) Combat Orders.—The formulation of combat orders to include field orders and administrative orders for an infantry division; signal operations instruction; signal communication units to include the division signal company and the infantry brigade communications platoon.

(14) Message Centers and Military Cryptography.—The operation of message centers at the headquarters or command posts of tactical units; the military use of codes and ciphers by signal communications personnel.

(15) Messengers and Pigeon Communication.—The training and employment of messengers; the breeding, care, training and military employment of homing pigeons.

(16) Field Exercises.—The installation and operation of various agencies of signal communication on the field.

(17) Visual Communication.—Demonstration and operations of the means of visual communication including panels, pyrotechnics and lamps.

(18) Code Practice and Radio Procedure.—Instruction in transmitting and receiving international Morse code; organization and operation of tactical radio nets.

(19) Meteorology.—Methods and instruments used in securing meteorological data for military use.

(20) Signal Supply.—The supply of signal equipment to troops.

(21) Military History and Policy.—Lectures on the Military Policy of the United States; the operation of the National Defense Act; the history of the Signal Corps.

(22) Animal Management.—Practical instruction in stable management; care of horses and mules in military service.

(23) Equitation.—Practical instruction in equitation.

(24) Army War College Exercise.—This subcourse consists of participation in the annual tactical exercises of the Army War College.

The Communication Officers' Course.—This course consists of subcourses arranged to meet the special requirements, the scope of the subcourses being practically the same as given above for the Company Officers' Course.

NAVAL AVIATION COURSE, NAVAL AIR STATION, PENSACOLA, FLA.

Flight training for qualification as naval aviator and naval aviation pilot is conducted at the Naval Air Station, Pensacola, Fla., the personnel to take the prescribed course being selected from the Navy, the Marine Corps, the Naval Reserve and the Marine Corps Re-

serve. Officers of the Navy and the Marine Corps upon reporting at the station for flight training are designated as "student naval aviators" or "student naval aviation pilots" and hold such designation until they complete the course or are dropped from the course for cause.

All seaplane training is grouped in the Seaplane Wing; all land plane training is grouped in the Landplane Wing, and all ground training is grouped in the Ground School.

Before final assignment to take the course each student is given the prescribed medical examination to determine his special physical fitness for aviation flying.

The complete course of training occupies a period of one year.

Each group of students is divided into two wings, one wing flies while the other wing attends ground school, the wings alternating by weekly periods.

The details of the courses are shown in the following syllabi:

PRIMARY SEAPLANE SYLLABUS

| | Hours |
|---|-------|
| Stage A—Familiarization: 2 indoctrinal flights as passenger | 1.15 |
| Stage B—Dual instruction: Taxying, take-offs, climbs, straight flying, turns, spirals, landings and spins. (Students should be permitted to solo at any time during this stage when in the opinion of their instructors they are qualified) | 15.5 |
| Stage C—Primary solo: Practice all work in stage B except spins; spins to be given on each dual flight | 17.75 |
| Stage D—Advanced solo: Flipper turns and spirals, and spins | 18.75 |
| Stage E—Precision landing: Slips and fishtails; last hour precision landing to 200-foot circle from 6,000 feet | 5.0 |
| Stage F—Final: Wingovers and eights | 12.0 |
| Stage G—Night flying | .75 |
| | 71.25 |

PRIMARY LANDPLANE SYLLABUS

| | Hours |
|---|-------|
| Stage A—Dual instruction: Taxying, take-offs, climbs, turns, spirals, landings, and spins (spins not to be practiced until stage C). (Students should be permitted to solo at any time during this stage when in the opinion of their instructors they are qualified) | 10.5 |
| Stage B—Primary solo: 180° and 360° spirals to mark (intermediate field landings to be given on all succeeding instruction flights not to be practiced on solo flights) | 17.5 |
| Stage C—Advanced solo: Wingovers and eights; stunts including spins | 22.5 |
| Stage D—Formation: 3-plane formation "V" and echelon | 12.0 |
| Stage E—Cross country: 2 flights, short and long | 6.0 |
| Stage F—Final: Front seat familiarization; general review | 1.5 |
| Stage G—Night flying | 80.0 |

OBSERVATION TRAINING

| | Officers Hrs. | Enlisted men Hrs. | Radio for Officers Hrs. |
|---|------------------|----------------------|-------------------------------|
| Stage A—Dual instruction: Normal turns, spirals, precision landings. (Students should be permitted to solo at any time during this stage when in the opinion of their instructors they are qualified) | 2 | 2 | - |
| Stage B—Solo: Practice stage A plus wingovers, eights, flipper, and spirals | 8 | 8 | - |

| | | | |
|--|-----------|-----------|-----------|
| Stage C—Primary formation: 3 and 5 plane "V" formation, 9-plane tactical formation | 9 | 9 | - |
| Stage D—Primary radio (student pilot for student radio operator) | 9 | - | 9 |
| Stage E—Formation radio (student pilot for student operator) | 9 | - | 9 |
| | <u>37</u> | <u>19</u> | <u>18</u> |

Total time officers, 55 hours.
Total time enlisted men, 19 hours.

ADVANCED SEAPLANE TRAINING

| | Dual Hrs. | Check. Hrs. | Solo Hrs. | Total Hrs. |
|---|--------------|----------------|--------------|---------------|
| Stage A—Dual instruction and primary solo: Take-offs, landings, turns, spirals, glides, emergencies, taxi practice (check any time after 3 hours) | 5.0 | 1.0 | 5.0 | 11.0 |
| Stage B—Torpedo plane formation: "V" and echelon | 0.5 | — | 4.5 | 5.0 |
| Stage C—Torpedo dropping; practice and dummy runs | — | — | 4.0 | 4.0 |
| Stage D—Instrument flying (solo is with student safety pilot) | 2.5 | 0.5 | 2.0 | 5.0 |
| Stage E—Catapult: 2 catapult shots | 0.75 | — | 0.75 | 1.5 |
| | <u>8.75</u> | <u>1.5</u> | <u>16.25</u> | <u>26.5</u> |

ELEMENTARY FIGHTING TRAINING

| | Hours |
|--|-----------|
| Stage A—Familiarization, taxying, take-offs, etc. | 6 |
| Stage B—Precision landings | 2 |
| Stage C—Acrobatics | 3 |
| Note.—Enlisted men finish here (total time 207.75) | — |
| Stage D—Section formation | 3 |
| Stage E—Division formation | 3 |
| Stage F—Altitude test, climb 1 hour | 1 |
| Stage G—Diving on parachutes | 2 |
| Stage H—Advanced section | 3 |
| Stage I—Acrobatics | 3 |
| | <u>26</u> |

ADVANCED COMBAT TRAINING

(For Officers Recommended for Fighting Plane Duty)

| | Hours |
|--|-------|
| Stage A—9-plane division formation | 2 |
| Stage B—6-plane tactical formation | 3 |
| Stage C—9-plane tactical formation | 10 |
| Stage D—Single seater versus single seater Section versus single seater | 1 |
| Stage E—Tactical problems | 4 |
| Stage F—Extended flight | 3 |

TOTAL FLIGHT TIME FOR COMPLETE COURSE

| | Hours |
|----------------------------|--------|
| For officers, short course | 258.75 |
| For officers, long course | 282.75 |

THE GROUND SCHOOL COURSES

The ground school courses are conducted during the half days assigned to respective wings of the classes for non-flight activities. These activities comprise theoretical and practical instruction by the following divisions of the Aviation Training Schools: Structural division, power plant division, gunnery division, communication division, photographic division, reserve training division.

The following are the courses presented in the different divisions:

Structural Division.—Aircraft construction and equipment, airplane overhaul, catapults, general information, aerial navigation.

Power Plant Division.—Airplane engines, test stand and trouble shooting, engine overhaul, electricity, machine shop.

Gunnery Division.—Aircraft gunnery, speed stripping, bombing, torpedoes, range gunnery.

Communications Division.—Radio code practice, communications procedure, radio material, semaphore.

Photographic Division.—Naval photography, including uses and elements of photographic optics, photographic chemistry, and aerial mapping.

Reserve Training Division.—Naval indoctrination; Navigation (general); Strategy and tactics.

THE U. S. NAVAL ACADEMY POSTGRADUATE SCHOOL, ANNAPOLIS, MD.

The Mission of this school is as follows: Postgraduate courses of instruction shall be maintained for the advanced education and training of commissioned officers of the naval service in (a) general professional and allied subjects; and (b) technical subjects pertaining to ordnance, mechanical, electrical, radio, marine and aeronautical engineering. In addition such other subjects as the Secretary of the Navy may prescribe in order to meet the requirements of the naval service.

The Naval Postgraduate School conducts and directs all such postgraduate instruction. Its headquarters and such of its activities as are practicable are located at the Naval Academy and it is administered by the Head of the Postgraduate School who acts under the supervision of the Superintendent of the Naval Academy.

The course is three years for the School of the Line. Courses in the Basic Naval Sciences—Naval Intelligence, Command, Operations, Engineering, and Ordnance and Gunnery are given to all School of the Line students. For special knowledge the school is divided into groups: A—Navigation, B—Marine Engineering, C—Radio Engineering, D—Ordnance and Gunnery, E—Aeronautical Engineering. An allotment of 240 classroom hours for the year is allowed for majoring in the selected specialty. The time so allotted is used as approved by the Bureau or Office of the Navy Department that is particularly concerned.

The Naval Science Courses consist of subjects as follows:

Naval Intelligence.—Economics as applied to Naval Intelligence, American Diplomatic Policy and International Relations.

Command.—Organization and Administration, Military Character, Leadership Psychology, Military Law.

Operations.—Navigation, Tactics, Damage Control, Communications, Mathematics as applied to Navigation.

Engineering.—Mathematics and Mechanics, as applied to Engineering subjects, Electrical Engineering, Marine Engineering, Radio Engineering.

Ordnance and Gunnery.—Gunnery and Fire Control, Ammunition and Explosives, Gun Sights, Range Finders, Ballistics, Torpedoes, Mines, Analysis and Performance.

At the middle of the School of the Line Year selections are made for the Technical School. Groups are then divided. Those designated for specialized technical training retain the original letter designation of the group.

At present the courses at the school are as follows:

Marine Engineering — { Theory
Design
Production
Operation

Radio Engineering — { Theory
Sound
Design

Communications

Applied Aviation Ordnance Design Ballistics Fire Control Explosives Metals Torpedo Design Power Plants Structure

Ordnance Engineering

Aeronautical Engineering

In the third year of the course a part of the instruction is given at the Massachusetts Institute of Technology at Boston, Mass., at Carnegie Institute of Technology at Pittsburgh, Pa., and the University of Michigan, Ann Arbor, Mich., and practical instruction is given at the Torpedo Research Laboratory at Naval Torpedo Station, Newport, R. I.

The officers of the Marines detailed to the Naval Academy Postgraduate School in the past have been assigned to take the special Aeronautical Course and the Communications Course.

CORRESPONDENCE COURSES

All of the schools herein described have certain correspondence courses to meet the special requirements of officers who while not being afforded the opportunity to take the regular courses at the school are still desirous of gaining some instruction in the subjects covered by the school.

The courses, frequently referred to as "Extension Courses," afford excellent opportunity for any officer to gain education in any element of military education while still pursuing his duties at his regular station.

Many officers avail themselves of the opportunities thus offered and the result is a distinct gain to the services in the preparation of the officers to meet the requirements of any service to which they may be assigned.

LAW COURSES

In order that they may be available for staff duties requiring a working knowledge of Law a limited number of Marine officers are assigned to take a regular college law course at a prominent law school. The law schools selected have been Georgetown University Law School, Washington, D. C.; Harvard University Law School, Cambridge, Mass., and George Washington University Law School, Washington, D. C. The regular law course requires three years' attendance and the student is required to have a college degree before taking up the law course, a diploma from the U. S. Naval Academy being accepted in lieu of a college degree of Bachelor of Arts. Officers after successfully completing these law courses are given an opportunity to take the regular examination for admittance to the Bar for the practice of law before the courts.

LANGUAGE COURSES

In order that there may be available for staff duties as higher class interpreters, translators and attaches a certain number of officers are selected to take language courses in several foreign countries. At present Marine officers are taking such courses in Japanese, at Tokyo, Japan; in Chinese, at Peiping, China; in Spanish, at Madrid, Spain, and in Russian, at Harbin, Manchuria. These courses last for from three to four years and require great application and energy if commensurate results are to be obtained.

On the Trail in Nicaragua



THE "JEFÉ"



SIGNALMAN



VOLUNTARIO



THE CHARGE



BANDIT CAMP FOLLOWERS



"HILL MARINE"

Sketches by Captain John W. Thomason, Jr.

Afloat and Ashore—Here and There



ON THE RHINE



FULL GUARD HONORS

GARDE D'HAITI

Sketches by Captain John W. Thomason, Jr.

Foreign Affairs

An Outline of International Political Conditions Today, Our Relations to Them, and the Bearing on the Outlook for America's National Defense

BY THOMAS H. HEALY, PH.D.

Prepared for the Marine Corps Gazette, 15 September, 1933

■ Since our article on Foreign Affairs appeared in the May issue of the GAZETTE, much of tremendous importance has happened, not only for the foreign affairs and national defense of the United States but for the world at large. In spite of a world still enmeshed in grave political and economic difficulties, we are able, for the first time in five years, to sound a note of optimism.

Much publicized plans to reduce drastically our military establishment were changed substantially almost over night, so that now we are on the road towards having a greatly improved national defense. While it is true that for reasons of economy and efficiency some of the previously proposed reductions will be carried through without change, they are as a whole greatly overbalanced by other items. We have started to build up our Navy to treaty strength; the order to lay up one-third of our naval vessels in a rotating plan has been abandoned; navy yards, naval stations and the like have been saved; the force of the expected blow against the R. O. T. C., the Naval Reserve, the Citizens' Military Training Camp and the National Guard has been greatly diminished; improvements will probably be made at barracks, arsenals, etc.; the mobilization of some 300,000 men in the Civilian Conservation Corps has been beneficial to the Army and Navy in many ways. While many individuals in the various branches of the military service will undoubtedly suffer by the economy measures which will still be effective, we believe that when the picture is examined as a whole, friends of a reasonable national defense should be more optimistic than they have been for many years.

While the domestic reasons for these changes in our national defense program have been given great publicity (particularly the point that such public works will aid greatly the unemployment situation and stimulate basic industries, such as steel), it is obvious to a close student of the matter that the more important (but little publicized) reasons are international ones. Since our last article, the Geneva Disarmament Conference has "adjourned" until a later date. All realists among the statesmen of the world appreciate that this "adjournment" is merely a polite and graceful way of conducting the final obsequies of a conference which was hailed in advance as "the most important ever held in the history of the world," but which has produced up to date nothing but friction and whose further chances for success are less than zero. The innumerable plans and counter plans (including the Hoover and Roosevelt Plans) that have been submitted by the various governments during the year and a half that the Conference has been in session have in turn been given a polite but superficial reception and then promptly pigeon-holed and forgotten.

Much of our foreign policy during the past four or more years has been predicated on the assumption that

there would be a universal reduction of armaments. Apparently now the United States, along with the other major nations of the world, has come to the realization that the time is not propitious for any universal disarmament and hence our attitude towards our national defense establishment, based originally on the possibility of universal disarmament, had to be modified drastically. It did not take our energetic President long to act when this point became clear.

Another international reason in back of the change in our national defense policy is the realization that for the present and for several years to come international co-operation on a large scale is not as actual or as feasible as many millions of Americans have been prone to believe. We are one of the last among the major nations of the world to realize this situation. For several years past a number of the major nations, while preaching international cooperation in the numerous international conferences, have been becoming more and more nationalistic in their practical policies. That the United States intends to embark on a similar policy for the immediate future seems to be obvious upon analyzing our actions at the farcical London Economic Conference, now defunct. For the last decade we have been spending much of our energies in chasing the ethereal butterfly of extensive practical international cooperation and only now have apparently come to the realization that with world conditions as they are there is no use of continuing the chase at the present time. Unless all signs are greatly misleading, the United States for the next several years will devote itself to a program of minding its own business and taking care of its domestic needs, withdrawing to a large extent from general international conferences. In examining our national defense from a national and domestic point of view it becomes obvious that permanent world peace and world disarmament are for the present mirages and that our national needs require the immediate strengthening of our military establishments.

Paradoxical though it be, many competent observers are convinced that the most effective thing that we can do towards the promotion of world peace and disarmament is the building up of our national defense establishments to their proper level. As a friend of world peace the writer of this article has advocated this idea for the past five years, but was as a voice crying in the wilderness, because most of the sincere and intelligent advocates of peace condemned such an idea as being totally inconsistent. That we are no longer alone among peace advocates in holding such an idea is evident by a recent extraordinary statement of Mr. Roy W. Howard, Chairman of the powerful group of Scripps-Howard newspapers. For a number of years Mr. Howard, working as he thought in the interest of peace, was one of the most bitter and powerful enemies of army and navy ap-

propriations. At the same time he was such an insistent advocate of the United States "spanking" Japan for her actions in China that in a confidential report made to the Japanese Government he was singled out as the greatest menace to peace between Japan and the United States. In a special article in the Scripps-Howard papers of July 7, Mr. Howard, returning from a visit to Japan and the Far East, advocated in a very clear and convincing statement the immediate building up of the American Navy to full treaty quota at the earliest possible date as *the only sure method of preserving peace with Japan and as an effective aid in promoting understanding between the two countries.* This courageous and illuminating article is well worth reading by every American who is interested in international affairs and in our national defense.

IMPORTANT CHANGES IN WORLD AFFAIRS

The world situation has changed tremendously in the last several months. In the limited space at our disposal we shall give an outline of some of the more important developments.

The peace of Europe today is on a far more stable basis than almost any of us would have thought possible some months ago, and this in spite of numerous alarmist reports of the past several weeks. Curiously enough, the main cause for this improvement is Mr. Hitler, whose rise to power was considered by many competent observers as a sure prelude to a disastrous European war. While the causes of the next war and its ultimate outbreak have been by no means dissipated, the present prospects are that the breathing spell has been extended considerably. Let us not delude ourselves into thinking that Mr. Hitler deliberately improved the situation, but rather the improvement came in spite of him and largely because of what many statesmen are inclined to consider as errors on the part of Mr. Hitler. A few months ago Germany was one of a powerful group of nations, having important objectives in common, bound together by a liaison which was strong in spite of being indirect and indefinite. She would have been reasonably justified in counting on the friendship, if not aid, of Italy, Hungary, Austria, Bulgaria, Turkey, Greece, Albania, Russia and even Great Britain.

The reaction to the policies of Mr. Hitler during the last several months has been such that today Germany is almost completely isolated internationally and has scarcely a friend left in the world on whom she could reasonably call for aid. The campaign against the Jews has not only gained for Germany the undying enmity of powerful groups of Jews throughout the world but it has been largely responsible for an almost complete alienation of friendship on the part of Great Britain and the United States. Hitler's campaign against the Communists and indications that he might not be loath to participate in a plan to despoil Russia has almost completely alienated Russia and driven her into the arms of the opposing camp headed by France. Recently a number of members of the French group have signed limited treaties with Russia and the Russian Foreign Minister was given a most cordial reception in Paris, where it is understood he was engaged in promoting closer trade relations between France and Russia, as well as discussing the recent non-aggression pacts.

Italy has cooled off considerably in her friendship towards Germany. Fears (that seem to have had good foundation) that Hitler would try to annex Austria, either through an internal Austrian Nazi revolution or

outside force, disturbed Italy to such an extent that the result was not a closer rapprochement between Germany and Italy but rather between France and Italy. It is obvious that Italy did not relish the idea of having as an immediate neighbor Germany whose future designs in consolidating her power in Central Europe might well run counter to Italian interests as well as precipitate a disastrous war. Austria herself, whose ultimate union with Germany was looked upon by Austrians a few months ago as both desirable and inevitable, has suddenly become intensely anti-German and the Austrian Government is taking the most drastic steps to combat Nazism and German influence; in this undertaking she has the public support of Great Britain, France and Italy.

Even Hungary has apparently become frightened at the changes in the European situation and is not as openly pro-German and revisionist as she was some months ago. Exhorted and cheered on by the Hitlerites, a Nazi group has come into power in Danzig since the last several months. And yet, they too apparently have realized the grave danger of becoming tied up too closely with Hitler and have taken particular pains to announce to the world that their program does not call for any fundamental change in the political status of Danzig. In official pronouncements they advocate better relations with Poland and have even gone so far as to refuse to apply that cardinal tenet of Hitlerism, namely, antisemitism. The other potential friends of Germany are probably just as much out of the German picture as those that we have just discussed.

Germany's equality and rearmament demands at the Geneva Disarmament Conference, coupled with Japan's statements about naval parity, dissipated any small remaining chance that that Conference had for success. But more important still, it has apparently justified in the eyes of a large part of Europe, as well as Great Britain, the insistence of the French group on maintaining a substantial military superiority. Germany by no means improved her relations with Great Britain when one of her spokesmen at the London Conference intimated clearly that Germany believed that some of her erstwhile African colonies should be returned to her. Inasmuch as Great Britain has most of these colonies, the irritation in Great Britain was considerable in spite of the fact that Mr. Hitler belatedly denied that his spokesman was expressing the views of Germany.

Mr. Hitler came into power in Germany because of his strong advocacy of a rather rabid domestic and international program for the Fatherland. The net result in the international field has been expensive for Germany. However, it is difficult if not impossible for Mr. Hitler to "back water" at this time, although there is little prospect of his attempting to carry out the international phases of his program, realizing that it would be suicide for Germany. Recent confidential advices received from Germany indicate that the domestic situation is as follows. Hitler will remain in complete power for at least another full year. His continuance in office after that time will probably depend on the amount of success that he has in putting back to work this winter the many millions of unemployed Germans. If he fails, it is difficult to forecast what might follow, although some of the possibilities might offer a grave menace not only to Germany, but to Europe and the world.

An interesting item that appeared recently informs us that Germany has just ratified a treaty with the

Vatican. This treaty illustrates first the diplomatic skill of the Vatican in safeguarding the rights of the Church which were menaced by the Hitler program and at the same time shows that Hitler is giving some attention to the warning signals to slow up in carrying out a program which was designed to alienate every friend that Germany had. Like many treaties, this was a face-saving one. The Church, which in the past has been an important political factor in Germany, agrees to restrict its activities to purely religious matters; but on the other hand, Hitler conceded much more freedom to the Church than would have been true if he had carried out his original program.

To sum up the meaning of these facts, which are of the most vital importance to the peace of Europe, the prospects of an early war in Europe were predicated on a reasonably strong Germany working toward her objective of revision of the treaties along with a numerous group of friendly nations. Today, Germany is almost completely isolated and her erstwhile friends are in no mood to undertake at this time the hazardous project of working with her towards revision and rearmament. The chances of success in such an immediate war being out of the question for the next several years, the probability of such a war has been dissipated at least temporarily.

ITALIAN RELATIONS

Recent events show that probably the most capable statesman in Europe today is Premier Mussolini. While an expert in the skillful use of words for both domestic and international consumption, Mr. Mussolini apparently never forgets the basic realities of the situation and directs his activities accordingly. He cooperated with Germany, largely against France and her allies, until it became evident that the German program was not merely a menace to the peace of Europe but in actual conflict with the interests of Italy. One of the most important developments in Europe is the increasing signs of a closer rapprochement between Italy and France on a friendly basis. This in turn has reflected favorably on the strained relations between Italy and Jugoslavia (one of the French allies), which are now considerably improved.

Simultaneously Mr. Mussolini fathered the Four Power Pact recently signed between Germany, France, Italy and Great Britain. While the Treaty as signed bears small resemblance to the original proposal, this by no means diminishes its importance as a step forward in preserving the peace of Europe. An interesting illustration of the increasing friendship between France and Italy is found in the almost unanimous support that the Italians at London gave to the French group. It is also significant that whereas last December, Italy made her debt payment to the United States in full, in June of this year her payment was closer to the 10% basis apparently being advocated by the French for the final settlement of the war debts. Too much stress cannot be laid on the improved relations between Italy and France, because their previous hostility was one of the outstanding menaces to European peace. It will be a fortunate day for Europe when Italy and France consolidate their friendship, and after all, with a reasonable give and take, it would seem possible that these two great nations could get together to their mutual advantage.

THE LITTLE ENTENTE

From time immemorial the political system of Europe has been based largely on the balance of power where several larger nations in their efforts to combat each other would line up on their side groups of smaller nations. The project of a United States of Europe, as a possible cure for the evils of the old balance of power system, has been under discussion for a much longer period of time than most of us realize. To a certain extent, the establishment of the League of Nations was hoped to be an important step towards this objective. Practically all intelligent friends of the League now realize that their hopes were misplaced and that, while the League can serve the very useful function of being a central secretariat for clearing international affairs, this is about the practical limits of its functions. Mr. Briand, a few years ago, proposed another plan looking towards a United States of Europe. As was to be expected, this plan made no headway because there is little chance for many years to come of effecting such a vast economic and political organization embracing all of the nations of Europe with their tremendous conflicts of interest. The elimination of the evils of the balance of the power and closer cooperation between immediate neighbors became particularly vital to some of the smaller powers who for so many decades have been used as pawns in the games of the larger nations. Hence, it has been felt for some time that regional agreements or even regional confederations might safeguard the smaller states and be a very valuable step towards the stabilization of Europe.

Shortly after the World War, Roumania, Czechoslovakia, and Jugoslavia, feeling that their unique community of interests warranted a closer association than is true between most nations, formed an alliance known as the Little Entente; for obvious reasons, they have worked in the closest cooperation with France. This was the first European regional agreement which had the ear marks of practical unity and a promise of permanency. While the union between these three countries has been close since the World War, it is only within recent months that the joint actions of the three governments have resulted in an almost complete international unit, both economic and political. Instead of three relatively small European states there is now for all practical purposes a solid block representing some fifty million people and forming an important new factor in the affairs of Europe. It is a misnomer to call this group any longer the Little Entente, because it is the largest working entente in the world.

From the outset, the Little Entente received continuous support and close collaboration from Poland (another French Ally), who has signed far reaching treaties with several of its members. This cooperation in international affairs has gone far towards transforming the Little Entente into a possible Quadruple Entente of eighty million people. The most recent developments indicate an endeavor (with some promise of success) to revive the proposed Danubian Federation and bring into collaboration with this group by means of economic agreements a number of Eastern European nations, including possibly Bulgaria, Greece, Turkey, Hungary and others.

The recent consolidation of the three Little Entente nations, coming together with close collaboration with

Poland, becomes a most important factor in the European situation, the significance of which has received comparatively little attention in America. Because of the important and widespread effects that may flow from this it will be worth while to watch closely further developments of this regional confederation. The failure of the London Economic Conference has given an added impetus not only to this movement but it has also led to semi-official suggestions that some of the smaller Northern European nations form some sort of economic union.

THE UNITED STATES AND EUROPE

The rather detailed picture of European affairs given above is necessary to understand how we enter into the matter. Because of the menace of Germany and her friends, the French group have insisted that the political difficulties of Europe can not be settled until French security was guaranteed absolutely; for such a guarantee she looks primarily to Great Britain and the United States. Germany insists on absolute equality and the right to rearm. The German plan calls for territorial acquisition at the expense of the French group. Hence, an absolute impasse has been reached on questions of disarmament and the settlement of the political difficulties, which the French say can be solved only by guarantees from Great Britain and the United States. There is considerable justification for the French point of view and finally the United States Government took cognizance of it even though somewhat vaguely. Hence, we had the recent spectacle of Mr. Norman Davis telling the nations at Geneva that the United States might be ready to enter into consultative pacts and even forego neutral rights for which we have fought during the last century and a half. Our Ambassador to London gave similar indications; and, even more important, some of the leading statesmen of Europe were not entirely unjustified in interpreting Mr. Roosevelt's message of May 16 as meaning somewhat the same thing. The changed situation in Europe would of itself probably have nullified the practical significance of these happenings. However, it is extremely dubious whether Mr. Roosevelt, in spite of his unprecedented power, could have ever obligated the United States in a practical way to follow out these plans which are diametrically opposed to almost every tradition of the United States. Furthermore, we do not believe that President Roosevelt ever entertained seriously such an idea, in spite of statements from persons in an official position in the present administration. Mr. Wilson tried to do somewhat the same thing by signing with Great Britain and France a three power consultative pact. Europe soon learned to its sorrow that the American people and the United States Senate had entirely different views and refused to ratify any such agreement. Unless all signs are misleading the United States has now embarked on a policy of letting Europe settle its own political and economic differences and instead of insisting on the impossible task of immediately disarming Europe, we have done the only rational thing, namely, started to build up our own national defense. Realistic France paid little attention to these recent official statements, knowing full well the attitude of the American people and the United States Senate. Consultative Pacts, Sanctions and Embargoes which have occupied so much space on the front pages of our papers in recent months will probably be of

mere academic interest for the United States in the coming years.

THE FAR EAST AND RUSSIA

A year ago this writer advocated that our policy towards the Far East should be summed up in five words of one syllable, namely, shut up and build up. Current events would seem to indicate that this policy is being followed. Japan has control of Manchuria and Northern China and no nation could have stopped her without fighting a major war. The only sensible thing for this country to do is to accept the "fait accompli" and safeguard our future interests in the Far East by the only instrument that carries much weight there, namely, a first class Navy. Japan was able to proceed with impunity during the last year and a half because of two basic reasons. First, she was thoroughly conversant with the demoralized economic and political situation in the United States. Secondly, she noted with interest the preponderating influence of the pacifist group in the United States, who allowed our Navy to sink so low that it could not be an insuperable menace against the Japanese fleet in Far Eastern waters. Japan was not worried by the League of Nations or any of the European nations because she knew full well that they would not attempt to stop her by armed force, as the use of such force would be of no particular profit to the nations concerned and would involve tremendous expense.

Since March 4 the situation has changed drastically. Instead of a demoralized people, the United States now is a reborn nation solidly back of its energetic President. The immediate building up of our Navy speaks louder than a million notes. Japanese leaders are similar to Mr. Roosevelt to the extent that they are realists. Just as Mr. Roosevelt adapted his plan to the actualities, so are the Japanese possibly ready to change their attitude.

In the opinion of some competent observers, we shall witness within the next few months a rather intensive drive on the part of Japan to cultivate the friendship of the United States. They believe this in full realization of frequent bellicose reports emanating from Japan these days and in spite of Japan's abnormally large defense program.

While the view of the writer may be considered unorthodox, we are convinced that it is distinctly in the interest of the United States, as well as of the peoples of the Far East, for these two nations to work together rather than remain in a state of continued and futile hostility. Whether we like it or not, Japan is going to occupy a leading role in the political and economic affairs of the Far East.

After all, the community of interests between the United States and Japan are much greater and more important than one would judge from American press statements in the last several years, which, in our humble opinion, have over-emphasized points of difference rather than points of agreement. Our major interest in the Far East would seem to be the maintenance as far as possible of the open door, which means an equal opportunity for American trade. We would not be surprised if before many months have passed Japan will be ready to give us certain guarantees along this line.

One of the things that rankles eternally in the breast of the average Japanese is the feeling that our total exclusion of Japanese immigrants has placed on their

brow the mark of racial inferiority. Without going into all of the detailed reasons, we would suggest that it would be excellent policy for the United States to solve this difficulty, which after all is a very minor one as far as we are concerned. If Japan were put on a quota basis like other nations it would probably mean that a maximum of 150 Japanese could enter the United States per year. By interpretation of existing laws or by a friendly gentlemen's agreement with Japan, we could if necessary and without hurting in the slightest the feelings of the Japanese insure that not even a handful of Japanese could enter our country in a given year.

"Face" is a highly important thing in the Far East and yet little understood by westerners. Japan is not interested in Japanese emigration to the United States but she wishes to get rid of a principle which in her mind stamps her with inferiority and hurts her prestige in the Far East. A movement is already under way (with considerable public backing) to put the Japanese on a regular quota basis and it is interesting to note that various California interests are supporting it.

The Chinese apparently are convinced that it is useless to continue the struggle against Japan and will probably accept Japanese acquisitions with as good grace as possible and may even go to the extent of reaching a final agreement with Japan. In this connection it is well to note that China has never declared war against Japan and during all of the conflict China has maintained its diplomatic representatives at Tokio.

Soviet Russia, who could give some excellent lessons in realistic politics to the Western nations, has apparently decided to accept with good grace the Japanese control of Manchuria. As long as Japan does not proceed on any campaign against strictly Russian territory it would thus seem that the situation in the Far East is at least temporarily stabilized and that the conflict should gradually subside.

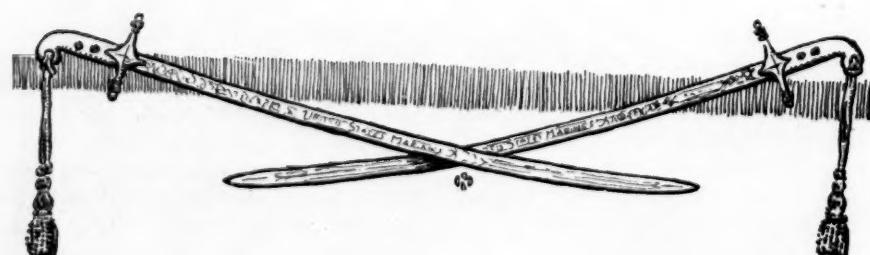
As explained above, Russia was an important factor in the Western European situation, as it is also an equally important factor in the Far Eastern situation. From both angles we are affected by Russia. The

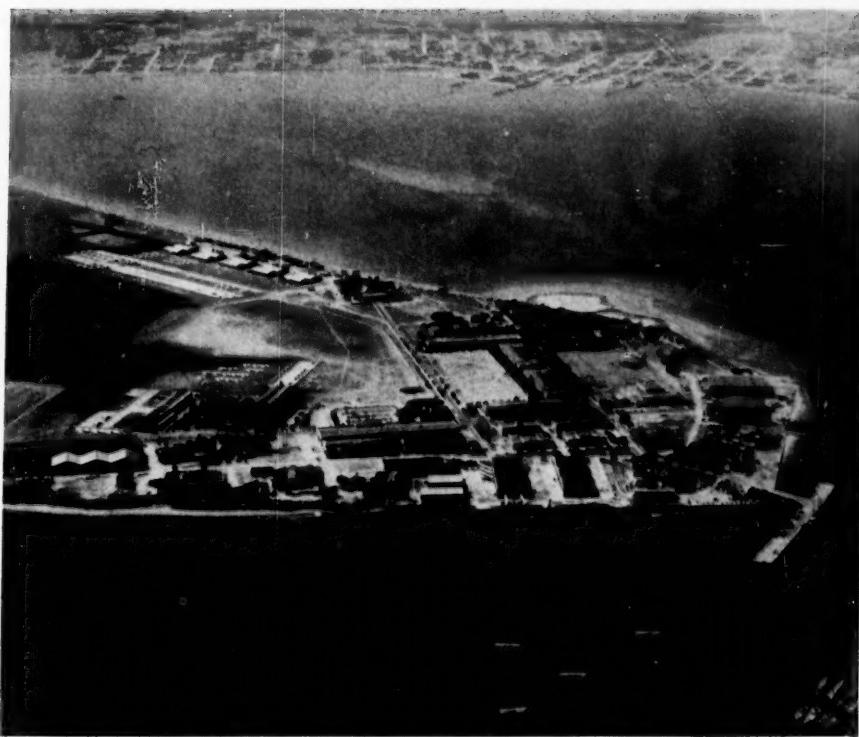
changed situation in Europe, in which Russia is playing an important role, has done much to insure the immediate peace of Europe and therefore get us out of a picture into which we were drawn by the menace of immediate warfare. Russia is the greatest potential force towards blocking Japan in the Far East and to that extent is a potential ally of the United States, who might also be interested in preventing Japan from going too far with her expansion program.

This immediately brings up the question of recognition of the Soviet Government by the United States. Indications are that before many months have passed the American Government will recognize the Soviet Government, either directly or indirectly, and whether it is through commercial agreements or complete re-establishment of diplomatic relations. Our Government has already authorized the extension of credit from public funds to finance sales of American cotton to Russia through Amtorg, the official Soviet trading agent in the United States. The prospects are that much larger credits for similar purposes will be extended by our Government in the very near future.

CONCLUSION

From the high lights that we have given of some of the important changes in the international situation in Europe, the Far East and Russia, together with the change in our national defense policy, it would seem that for the first time in five years we have some reasons for being optimistic both as to the international situation and our national defense. War in Europe, which seemed imminent a few months ago, has probably been postponed indefinitely; affairs in the Far East are stabilizing themselves to such an extent that it is reasonable to assume that the conflict will naturally subside and furthermore that the possibility of an armed struggle between Japan and the United States has become more remote. The unexpected building up of our national defense establishment will put us in a good position to meet any emergency if and when it arises.





Naval Air Station, North Island, San Diego, California

We Ferry "Old Lady Wright" Back East

BY COLONEL HAROLD C. REISINGER, U. S. Marine Corps

■ In the May issue of this publication in "Across the Continent in an Open Plane," I left myself stranded, to all intents and purposes, in San Diego, California. Now my proper station is Headquarters Marine Corps and it therefore seems appropriate to get back to the East Coast. That is the reason, if any, for this article.

Some readers of the MARINE CORPS GAZETTE had pleasant things to say about the first article. One critic, however, while admitting it was not so bad, complained that he didn't get the sensation of flying from the account of that flight. To stick to the realm of truth and avoid imaginative fiction, it appears a bit "soupy" to me to try to communicate flying sensations in an article on an air journey unless something exceptional happens. In ferrying a plane across the continent, the pilot is not taking unnecessary chances with the weather.

An Admiral once remarked to me that flying was a boring experience. I do not entirely agree with him, for there's much too much to be seen from the air. I will admit, however, if one simply sits without pursuing some line of thought or action, flying long hours in good weather is a fairly monotonous experience. I have found that the droning of synchronized motors of a transport plane cruising along quiet air lanes has a pronounced soporific effect upon me. When all is said and done, it takes bad flying weather to shake action out of a plane that is bound from here to there. Then you are apt to accumulate some

flying sensations that are highly uncomfortable and disconcerting.

With this apology to those who may be seeking air thrills from this flight article, I will, in as orderly a manner as possible, get myself back to Washington.

During my brief stay on the West Coast, I made an inspection of the activities of the Paymaster's Department. With Captain Guymon of the Marine Corps, I flew to Los Angeles in order to catch a night train to San Francisco. The plane used was a Falcon, roomy and comfortable in the rear cockpit, so the trip was exceptionally pleasant. Also, I have to thank Captain Guymon, who thoughtfully saw to it that no point of interest in the scene racing beneath us escaped my attention. A flight along the coast to Los Angeles presents a colorful panorama of attractive small towns perched on the ocean cliffs, and others nestling in indentations along the shore. The deep blue of the Pacific; the surf line, brilliant, white, lancelike, marking the beaches, while to the right looking inland the great coastal range of mountains frames the picture. From the shore line the great plain, here and there broken by lesser hills, rises gradually to the San Jacinto and Santa Ana Mountains, well watered by numerous rivers, silvery threads in the green and brown pattern of the land. It is a gracious country, spacious, fertile and attractive to the eye. The bird man's view of the old Spanish missions tucked away in the small valleys was one of the most pleasing memories of this trip. Our air route covered approx-

imately one hundred miles of seacoast, and during the entire trip beneath us there was always some attractive town or beach resort to catch the eye. Approaching Los Angeles, we passed over Huntington Beach and then Long Beach, thousands of oil derricks beneath us, some apparently not only in the backyards of homes but on the lawns as well. From the sky Huntington Beach very strongly resembled a recumbent porcupine, bristling with indignation at the noise of the plane. Ahead of us the San Pedro hills stood sentinel above the battleship division of the fleet lying at anchor in Los Angeles Harbor. Passing Long Beach, we turned inland, soon racing above the fine air field at Virginia City on our course to Glendale. Los Angeles spreads mightily over the plain, wide boulevards and great public parks opened up beneath us to break the continuity of building blocks. This is an air center and an air-minded community, there being at least ten airports in and around the city.

Five months after this flight, the world was shocked by the news that this section had been visited by a disastrous earthquake, the blow falling heaviest upon Long Beach and San Pedro.

We landed at the service field at Glendale. It lies at the foot of a considerable

mountain, a part of the Santa Monica group. Air currents play tag with the slopes, shooting upward and kicking back at the plain, so it took no inconsiderable skill for Captain Guymon to put our plane down on the field right side up. And to use a colloquialism, "it was plenty dusty," the field being unsodded. From this convenient landing spot, I took the evening train at Glendale station for San Francisco.

During the afternoon of my day in San Francisco, I had the opportunity of motoring into the hills above Berkeley and climbed to the summit of Grizzly Peak by the new road just opened. From this viewpoint, Berkeley, Oakland, San Francisco Bay, the city of San Francisco and the Golden Gate beyond, all seemed to lay at one's feet. It was late afternoon and the panorama presented still constitutes an enduring beautiful memory of this trip. I was back in Glendale early the following morning. With Captain Guymon I went at once to the hangar where we had housed our Falcon. We literally had to dig it out of the dust and sand which covered it. There had been a gale the

day before and even the closed doors of the hangar could not keep out a fair section of the sandy field. Taking off from Glendale, we climbed above the Santa Monica Mountains for a sky view of Hollywood and Universal City before sailing above the miles of buildings that is Los Angeles and its suburbs, on the course to San Diego. On the flight down from Los Angeles we encountered the end of a dying "Santa Ana" that had so thoroughly sanded our plane. This is the name given to a strong wind that rushes down the valley from the Santa Ana Mountains, often reaching gale velocity. We were battered around considerable, quite enough to make me grateful that we had not met the full force of the particular "Santa Ana." Captain Guymon was in nowise bothered by the gale, but kept me informed by notes of anything of interest overlooked on the previous flight.

Upon my return to North Island, I was informed that everything was set for Lieutenant Smith and I

to leave for the East Coast at daybreak the next morning. On the morning of October 26th, I was up at 4:30 and on the flying field at North Island at 5:45. There I found that our return journey was to be made in an "O2U" plane which had long been in the service on



View of the water front, San Diego, California

the U. S. S. WRIGHT and was being sent to the Naval Aircraft factory at Philadelphia for a general overhauling. By unanimous vote, we dubbed her "Old Lady Wright." Something of a comedown after the "SU3," but I must confess the "O2U" type was my usual mode of travel, only not quite so aged as the one we were to ferry East. Another plane of the same type and approximate antiquity was warming up and destined to carry Lieutenant Commander Maile and Lieutenant Temple of the Navy, who were to fly in company with us part of the way. As neither of these old planes could develop more than approximately ninety-six land miles per hour, under favorable conditions, we did not look forward to a quick trip East, refueling stops would be more frequent and the flying days increased to four. In this state of mind, we commenced the flight.

The experiences of our westward trip warned us to be prepared for chilly flying and we acted accordingly. During the entire trip, the question of what to wear was troublesome. While the high altitudes were

bitter cold, the temperature on the flying field in the Southwest was generally too warm for comfort, so it was an ever present question, this one of clothing. One officer solved the problem to his satisfaction by wearing his B. V. D.'s only under a furlined flying suit. It worked all right until El Paso, when the prospect of meeting ladies and strange officers immediately upon landing made "pants" an urgently imperative need.

We took off for the return journey at 6:15 A. M. Our course was south of that followed when flying West and carried us close to the Cottonwood River and we got one last glimpse of the Tia Juana and Agua Caliente in the early morning. The mountains which had been so lovely in the setting sun were equally picturesque in the morning light. In the beginning of the journey, we did not feel any too confident of "Old Lady Wright," so worked our way up the valleys, gaining altitude the while. Later we discovered

that the plane had a lot more power than we had at first supposed. We bore to the south of El Centro in the Imperial Valley, crossing Calexico and Mexicali. These two towns, as alike as dusty twins, adjoin one another, the boundary line sketchily indicated by a wire fence passing between them

and, curiously enough, both possess aviation fields which adjoin one another.

On the West Coast, I heard an amusing story connected with a marine aviator who, intending to land at Calexico, through mistake came in on the Mexican side of the adjoining fields. Immediately upon landing, he was surrounded "by the entire Mexican Army in dungarees." Suddenly realizing his error and fearing international complication, he gave the plane full gun, and filling the Army with dust, took off and landed across the border. For some time, he congratulated himself that he had escaped without his plane number being recorded, but subsequently, to his chagrin, discovered that he was in error when confronted with a voluminous correspondence which had found its way to him through international channels.

Our first landing, after leaving North Island, was made at Yuma, Arizona. Here, we refueled and took

off, heading well south of our previous route, crossing the Gila Mountains. Commander Maile and Lieutenant Temple, being familiar with this route, felt no need of tying into the railroad as a guide to Tucson, and cut almost straight across country, setting a course through the mountains. They styled themselves "cowboy aviators" and took short cuts along the valleys. Smith flew "Old Lady Wright" at an elevation around ten thousand feet, which position coupled with our unexcelled visibility gave smooth flying and a magnificent view of the broken country in all directions. Personally, I like my altitude. The meanderings of the Colorado River, on its way to the sea through southern California, dominates this land of sand, sagebrush and cactus.

We reached Tucson, Arizona, shortly after 12:30 and landed to refuel while snatching a sandwich lunch. We took off for El Paso in an hour. To the east, a great barrier of mountains reared it-

self and we headed directly for Apache Pass. Neither of the old planes possessed great power and the pilots had some difficulty after gaining the necessary elevation to clear the Pass because of a strong head wind. We finally rose ten thousand, five hundred feet, bucked into the wind and slowly



Barren foothills of Hueco Mountains, near El Paso

fought our way up the Pass to slide across the ridge with the Dos Cabezas Mountains on one hand and the Chiricahua Mountains on the other, forming a chute to accentuate the force of the head wind. Anyone seeking an air thrill would have gotten an ample dose as we approached the crucial moment of passing over. For we not only experienced difficulty in pushing through, but the flying was exceedingly bumpy and we were for a time completely surrounded by high mountain peaks. I usually got a mild attack of "jitters" watching the "cowboys" jockeying their old plane over mountain tops. They took the divides in a series of upward heaves. I would unconsciously hitch them over each ridge by my parachute straps until, with a sigh of relief, I saw the last ridge cleared and their plane gliding down the eastward slope.

Skirting the Mexican border, we passed over Columbus, the scene of departure of Pershing in 1916

on his expedition into Mexico in pursuit of Villa, who had raided into the United States so boldly as to finally attack the American troops garrisoned in Columbus. At our elevation we could soon distinguish Franklin Mountain cutting the skyline above El Paso sixty miles away. Going into Biggs Field we passed squarely over the mountain crest. As the afternoon was advancing, the western side of the mountain was brilliantly sunlit, while the eastern side lay in deep purple shadow. From an elevation of nine thousand, five hundred feet, we dove directly to Biggs Field and landed at 4:30. It was a thrilling glide. We seemed to be sliding, slipping, coasting, down the mountain side, flirting with the ridges that showed dimly below us in the shadow. When we reached the ground "Old Lady Wright," having ideas of her own about a proper landing, performed a very creditable ground loop. Fortunately no damage was done to the right wing, which had dragged in the spin caused by the failure of the right brake to do its duty. The demonstration of centripetal force was convincing—the rear seat navigator's ribs could testify to that fact for a month. After our furlined-B. V. D. pilot had hastily dug up a pair of trousers and other accessories, we were driven to the Officers' Club at Fort Bliss, where we were put up for the night. A party was organized to invade Mexico for dinner. We spent the evening in Juarez, the wicked, dined at "The White Mint" and absorbed much more Mexican atmosphere than was to be had at Tia Juana.

The next morning we parted company with Commander Maile and Lieutenant Temple, who were making the return trip by way of San Antonio, Texas. Lieutenant Smith took off for Midland, Texas, following our old route. The day was wonderfully bright and clear, and from El Paso the Pass over the Delaware Mountain, a hundred miles away, was plainly visible. The flying conditions were fine but the wine-like air had a decided nip to it. We flew directly into the morning sun, which cast long black shadows on the flat, sagebrush plain; black and yellow, sand and shadow, mile on mile. We followed the Pasotex Pipeline, hoisted "Old Lady Wright" over the Delaware Range, picked up Wick and its smelly Tank Farm and set our course across country for Midland. We made Midland by ten o'clock, landed in good style to discover that we had a long nail in the left tire. That was the first time I knew that a punctured tire on an airplane was a possibility—but that tire was as flat as any I had seen on an auto. We philosophically ate lunch while the tire was being patched. Going east we lost time, and at Midland set our clocks ahead one hour, so it was noon when we took off Hensley Field.

Lieutenant Smith, during the flight East, always went after altitude. He had a theory that the time consumed in the climb was more than compensated for by better wind currents and general flying conditions. I am not in a position to dissertate wisely on this subject, but actual experience appeared to demonstrate that Clyde Smith was absolutely right. I believe that he got the best out of that plane which could be developed. The resulting increased visibility was very gratifying to back-seat navigator. To appreciate Texas, one must go into the air—there the vastness of this great state can be understood; not only the area, the great rivers and facilities, but the variety

and immensity of its industries. However, the high altitude in October can, in Texas, be bitter cold, and we both suffered considerably during this leg of the journey. I was quite ready to come down and warm up a bit when we glided in to land at Hensley Field near Dallas for fuel. Two hours of freezing air was plenty for the time being. We were in the air again at 3:30 and set our course for Shreveport, La., passing Dallas and Trinity River looking their best, decked out by the afternoon sunlight. Toward the latter part of the afternoon, when in the neighborhood of Longview, Texas, we ran into our first bad flying conditions since leaving El Paso. Below us were innumerable brush and forest fires that blanketed the ground view for miles on either side and reminded one of the photographs of the "Valley of the Ten Thousand Smokes" in Katmai on the Alaskan Peninsula. Fortunately we soon ran out of this ground smoke and got back our fine visibility.

As we approached Shreveport, skirting the edge of Cross Lake, the air field stood out clearly by the banks of the river, scarlet in the setting sun. We circled the field and came down in the most approved fashion, and, to our embarrassment, "Old Lady Wright" staged another elaborate ground loop, this time before a small audience. I was prepared for her antics and no further damage was done to my very sore ribs. Lieutenant Smith's patience was exhausted and he immediately arranged for a mechanic to fix the refractory right brake before we did a nose-over. In Shreveport, a mystery was solved! The mystery was, why had I suffered so with the cold in this trip? I discovered that I had been sitting on two cockpit covers in addition to my parachute, the combined effect being to lift me into the air stream. I stowed them in the luggage compartment and from there on rode in comfort, although we ran into very cold weather north of Atlanta. Moral is: Take a good look at the rear seat before settling down for a long hop, for it is altogether too convenient a place to stow things at the last minute.

We took off the next morning at 7:45 for Meridian, Mississippi. We had to wait for the fog to burn off the field and Red River bottom and, even after the atmosphere cleared sufficiently for us to take off, once in the air the lowlands of the country to the south of our flight were marked by long tenuous fog veils. At our height it looked for all the world like a spider's web, dew-covered, upon a field in the morning.

We left the windings and twistings of the Red River and headed back along the Yazoo and Mississippi Valley Railroad. By 8:30, the mist had burned off sufficiently for us to gain six thousand feet, from which height the view was magnificent. To the east of Vicksburg, in the neighborhood of Jackson, we passed over vast forest areas where rivers were only distinguishable by dark shadow paths made by the sun in the trees. As we flew farther east, we began to lose the wonderful visibility that had been characteristic of our western flying. The hills again became smoky and the horizons dimly discernible through the haze.

The name of Newton, painted in yellow upon a building just north of the railroad, marked that city. It seemed remarkable to a mere passenger that so few cities along our route had taken the trouble to place, on a prominent building, some mark of their identity.

There are times when a positive check on a locality is as comforting to the aviator as is the gleam of a lighthouse to the storm-beset mariner. The morning was about half over when twenty miles ahead we could see the flying field at Meridian, Mississippi. This time, we landed and performed no acrobatics. It was evident, at any rate, that the mechanic's job on the right brake was a success.

From Meridian to Tuscaloosa the country had resumed its pleasant smiling aspect, showing no evidence of the flood we encountered outward-bound. Passing Tuscaloosa, at least fifty miles below Birmingham, we encountered a black pall of smoke borne to us by the wind from the furnaces of Bessemer and Birmingham. Lieutenant Smith went up into the sunlight above the smoke and from this vantage we could see far beyond to clear atmosphere and through the black clouds distinguish landmarks below. This, to me, was a rather novel solution of the difficulty which confronted us; visibility was obtained, I presume, from the diffusive effect of the sun upon the smoke cloud.

Leaving Birmingham behind us, we cut corners to Anniston, crossed over the mountain, and soon had the East Point airport below Atlanta in view. We landed about 3:30 central time, which gave us an opportunity to see something of the city before dark. I had not been in Atlanta in ten years and the changes in the downtown district were striking. Large new hotels, department stores, strangers to me, had been erected north of Five Points, business had crept up both Peachtree and West Peachtree Streets, and even ventured eastward on the once exclusive Ponce de Leon Avenue. Atlanta is always so alert and alive; there exists a quick tempo to its civic life; certainly it is well named, the gate city of the South. Through it passes a major share of the trade of the South and Southeast, and within its limits the largest commercial companies maintain their agencies. Friends took care of us that night and saw us off the next morning on the last leg of our journey. We got into the air at eight o'clock with a friendly south wind to aid us. That old plane could use a little kindly assistance at any time.

The friendly south wind, however, carried along a heavy pall of black smoke in which Atlanta was buried up to the neck when we left. By veering to the west of the city we

could keep an eye on the Southern Railroad, which furnished us a check northward, and avoid the smoke. Soon the Great Smoky Mountains of Carolina loomed ahead, and though beautiful from a scenic point of view, they were too well named to be entirely popular with an aviator flying over a strange country. The sun had burned off the

last of the morning mist as we passed above Seneca, flying high, and far to the east we could discern the town of Anderson, South Carolina, where we were storm-bound three days on our trip westward. Following the Gainesville-Charlotte route, we passed over the Catawba and Rocky Rivers and the Yadkin River, chocolate colored, and soon ahead of us was Lindley Field, Greensboro, North Carolina. Spiralling down from six thousand feet, we landed, changed our time to 11:38 and had a sandwich luncheon while refueling. While we were on the field four Navy planes came in from Anacostia en route to San Diego, California. They had been bucking a stiff head wind all morning, which increased in velocity while we were at Greensboro. One of the pilots remarked that if the first day's flight was to be a sample of the weather conditions to be encountered on the way West, he hoped at least to reach San Diego by Thanksgiving. In addition to the Navy planes, a large Condor, of the American Airways Company, came in, followed closely by two Army scout planes. The small ground force at the field were having a busy time of it when we left the airport. We took off at 12:35 and encountered some very bumpy flying as the wind, on our tail, gradually increasing to forty-five miles an hour, hustled us northward, at times almost too enthusiastically. There were moments when we skidded along like a kite and it seemed likely that the tail would outstrip the propeller. We were "making knots" with a vengeance.

We raced northward, checking on the railroad until the Dan River flashed beneath, then Smith ran by compass for the Potomac. It is a peculiar country one flies over on this route, in that while dotted everywhere by prosperous, fertile farms where stood shocked corn in orderly rows, the yellow husked corn drying in the sun, where cattle fed peacefully in the river bottoms, where Jack Frost had touched the pumpkin and painted the forests after the pattern of a Paisley shawl, still for miles one saw no sizable towns. From our height, with average visibility there were such "checks" on the course as Petersburg and Richmond.

The James River country, a picturesque panorama—green, russet brown; white and brown cattle feeding in the bottoms, corn in military formation; a land to be remembered and revisited. A friend of mine in Congress, who proudly calls this part of Virginia "home," referred me to the comments of Captain John Smith upon the land over which we were now flying:

"Heaven and earth never agreed better to frame a place for men's habitation. The mildness of the air, the fertility of the soil, the situation of the rivers are so propitious to the use of man



The Author and the Pilot with "Old Lady Wright" at Atlanta, Ga., homeward bound

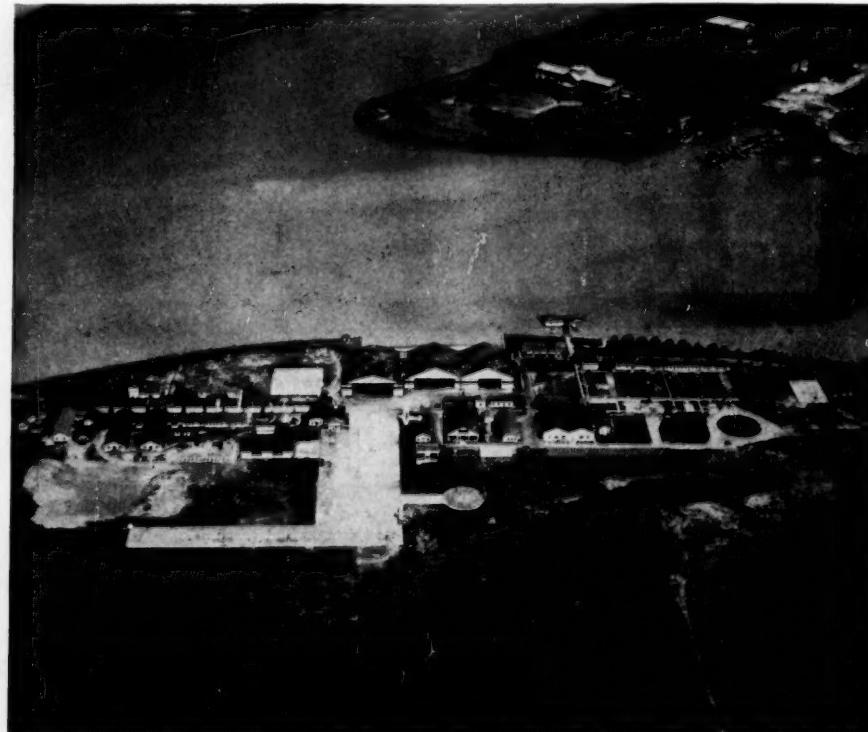
that no place is more convenient for pleasure, profit and man's sustenance under any latitude or climate. The vesture of the earth doth manifestly prove the nature of the soil to be lusty and very rich. So, then, here is a place, a nurse for soldiers, a practice for mariners, a trade for merchants, a reward for the good." The adventurous Captain was a little fulsome in his praise of this beautiful land, but in the final test it must be admitted he was something of a prophet; also, there was the Pocahontas incident.

Appomattox Court House, secure in its fame, drowsed to the west of our flight and far to the right the city of Richmond loomed busily through the smoke of its industries. Appomattox—famous for the surrender of General Lee, but, to me, more justly entitled to be remembered as the occasion of the display of human kindness by the victorious Union troops to their starving rebel brothers and the tact with which General Grant treated his recent enemies. That one may be as glorious in victory as in defeat is sometimes overlooked. Soon we were above the Potomac River at its turn at Widewater. We crossed, followed up the east bank; then Quantico came into view, the checkered roofs of its aviation field a brilliant landmark on the right bank. Then the wonder of the Potomac hills in October—red, brown, yellow, blending with the evergreens—were stretched before us. Truly a beautiful country that most fittingly bred so many stately, gracious women, and strong, clean, able men. Mount Vernon—orderly, neat, firmly planted in the soil, an appropriate monument to the methodical dignity and ability of the gentleman who developed it. Up the west bank curved the Memorial boulevard, gradually

taking on a landscape beauty and dignity, soon not to be surpassed by any highway in the world. General Washington's country—his imprint upon the land of the present era, spread as a Mosaic of ancient and Fredericksburg to Georgetown. Next, Alexandria, old in historic tradition, but fully alive to its part in modern buildings, the Masonic Memorial dominating the pattern. Young George Washington, bearing a king's commission, here joins General Braddock, while he prepares for his disastrous expedition into Ohio, the youthful Virginian to emerge from the debacle with honor and recognition of his military genius and personal integrity. Gradually the city of Washington, conceived by George Washington as the nation's capital, came out of the mist of the afternoon.

We were rushing to the journey's end. Now ahead, bathed in the golden sunlight, lay the Naval Air Station at Anacostia, at which we came to earth at 2:27 P. M., surely a record for that old plane, thanks to the gale which blew us up from Greensboro. However, we nearly came to grief at this, the last moment of the trip. When we circled the field, banking to come head-on to the wind for our landing and throttled down, "Old Lady Wright" stopped dead, shivering impotently over Anacostia Creek—the wind was too much for her. Lieutenant Smith reacted instantly and, giving her full gun, we came on under power. When we touched the ground and he cut the throttle again, the plane rolled fifteen feet and stopped, fortunately right side up, and all was well.

We were home and the trip was over—to live forever a memory, vivid, fascinating, always beckoning and inviting repetition.



Naval Air Station, Anacostia, D. C., with U. S. Army War College in the background

The Tactics and Technique of Small Wars

BY LIEUTENANT COLONEL HAROLD H. UTLEY, U.S.M.C.

PART III.—FUNCTIONS OF THE PERSONNEL (FIRST) SECTION OF THE STAFF

■ When an organization is assigned to participate in a Small War the time between the receipt of the Warning Order and the embarkation is, usually, very brief. Short though this time is, the organization headquarters must accomplish much if the organization is to function to the best advantage during the subsequent phases of the war. Its Headquarters must "hit on all four." Intelligence, Plans, Supply and Transportation are most important and naturally will receive the bulk of the commander's attention. If the organization is so unfortunate as to have a "one-man headquarters" or one not organized and trained in accordance with sound basic staff principles, it is understandable that matters which seem of little or no immediate importance should be shunted aside until it is too late. So it happens that too often we have seen the First (Personnel) Section of the Executive Staff limiting its activities during the First Phase of a Small War to the distribution of incoming replacements and the preparation and scrutiny of rosters. And it must be admitted that neither regulations nor manuals furnish much of a guide to a zealous but inexperienced chief of the first section of an executive staff.

First let us consider a few fundamentals. The time allowed for preparation is always short,—actually it amounts to the time necessary for the most available transport to reach our dock,—hence all preparations that can be made prior to the receipt of orders should be standardized and undertaken without awaiting the time they must be applied to a specific Small War. Second, the Personnel Section has cognizance over all matters pertaining to the personnel as individuals,—allocation of replacements, personnel records, morale, etc. Third, it is laid down* that:

"The purpose of Marine Corps exchanges is primarily to supply the enlisted men at reasonable prices with articles necessary for their health, comfort and convenience, not supplied by the Government

"An exchange may be established for any organization of the Marine Corps upon written application of the commanding officer, approved by the Major General Commandant."

Most important in maintaining a high morale from the first landing, is the early provision for sale to the command of tobacco (with accessories), candy, toilet articles, and cleaning gear. The initial stock of merchandise can, and should, be limited to the most popular standard brands of the above five items. More fancy lines, novelties, etc., may be added later if the situation warrants. But the items enumerated are vital to the preservation of the morale of the command and provision must be made in advance for their sale at the earliest practicable moment after the landing has been effected. Most of them are obtainable, it is true, in some form and to a greater or less degree, in the probable theater of our operations, but they are procurable only at greatly increased prices, and their procurement by the men themselves from local establishments is open

to the further objection that it entails their coming in direct contact with the natives,—native people, native liquor, native women, native prices—all of which can be prevented by the exercise of a little foresight. It is believed that it should be mandatory for every organization embarking for the theater of operations of a Small War to carry with it 30 to 90 days' supply of the five items enumerated above:

Tobacco (pipe, chewing and cigarettes),
Candy (packed for tropical export, in sealed tins),
Writing Materials,
Toilet Articles,
Cleaning Gear.

The question immediately arises as to what quantity of each item should be procured. The decision as to the quantity of exchange merchandise to be taken should be made in terms of "days' supply" by the same authority that decides how many days' rations and how many months' supply of clothing are to accompany the expedition. The determination of what constitutes a day's supply should present no difficulties to Headquarters in Washington, for by taking the experience of the exchanges in Haiti, Santo Domingo, Nicaragua and China covering a given period of time, for example three months, and from the strength reports determining the average strength of the command served by these exchanges during the same period, the number of units of each of the five items of merchandise under consideration, used per man per day can be readily determined. Or, if the results to be obtained are not believed commensurate with the labor involved, it is believed that the average of the figures that could be obtained from the ten or fifteen officers who have had the most experience as Exchange Officers on Expeditionary duty would be sufficiently accurate for practical purposes to determine what should constitute a day's supply per man for each of the few items under consideration. Either method of computation requires appropriate action by Headquarters now, before the next expedition is ordered. Until, or unless, such action is taken the new exchange officer of an expeditionary unit must rely upon experience, his own and that of his brother officers available for consultation.

But *how* is this merchandise to be procured? It has been suggested that organization and unit commanders, when going on expedition, take Post Exchange Merchandise in lieu of cash as their detachment's share of the local Post Exchange. While, as a last resort, this method might be satisfactory if the entire command were serving at one post, it is doubtful if the tobacco and candy would be packed for tropical export—in sealed containers—and when, as is more usual, the command is assembled from a number of different posts, it is probable that an unbalanced stock and considerable confusion would result from the adoption of such a procedure. A better way would seem to be to draw local Post Exchange dividends in cash and purchase the merchandise needed,

*Marine Corps Manual, Chapter 12, Articles 12-1 and 12-2.

preferably f.o.b. transport. It goes without saying that the placing of these orders must be expedited and hence, the detail of an Organization Exchange Officer and the obtaining of the necessary authority to establish the exchange, must be expedited.

At the best time is all too short, and it would appear to the best interests of morale and efficiency if regulations were so modified as to require the Headquarters Exchange Officer, to purchase immediately upon the issue of orders to an organization to proceed on expeditionary duty, the predetermined quantity of the prescribed items of merchandise necessary for the force in question under existing conditions, together with the required blank forms, and to have these delivered at the port of embarkation. The amount paid by the Headquarters Exchange to constitute the initial loan of the Headquarters Exchange to the Organization Exchange, and the transaction to be automatic and its execution as infallible as human frailty permits. The organization exchange officer should know, not only what he is entitled to expect, but what he is going to get. Such a procedure is a radical departure from established practice, but it appears legal, logical and feasible. It would require a change in the Marine Corps Manual and the compilation of data to put it into effect.

Further operations of the organization exchange require no more than brief mention. It is the all important early initiation of the exchange itself that should be emphasized.

Further purchases should be "On Consignment" as far as practicable.

Men serving away from the exchange, especially when the means of communication are poor, should be extended credit.

No matter how small the unit, provision should always be made for healthful recreation. Outfits for indoor baseball (to be played outdoors), volley ball, basket ball and a few baseballs, fielders' gloves and bats provide outdoor exercise, require little or nothing in the way of prepared grounds, are of small bulk when stored or shipped and help immeasurably to keep the men occupied during their spare time. "Acey-deucey" equipment, playing cards and a liberal supply of periodicals perform a like service during the rainy season and evenings. More elaborate equipment, organization teams, athletic leagues, and the like can wait the time when the situation has somewhat stabilized and the exchange is financially able to sponsor them. The main thing is to carry some appropriate recreational equipment of small weight and bulk on the initial move. And the responsibility for attending to this matter before embarkation should rest on the Chief of the First Section, whether he be Bn-1 or F-1. A large part, although of course not all, of the sick list and punishment list can be traced to failure to provide the necessary healthful recreation *in time*.

Another matter demanding the early attention of the Personnel Section is the dispatch of mail from the United States. It will frequently happen that but little can be done until after the theater of operation has been reached and the situation developed. Where but little is known of the situation that may confront the force, all that can be done in advance may be to make a careful study of the mail routes to the various ports in the theater of operations and of the means of inter-communication between these ports and to obtain the appoint-

ment of a Navy Mail Clerk for the organization. This last is a necessary prerequisite to the orderly and prompt dispatch of mail in sealed pouches direct to the organization from postoffices in the United States.

Postmasters are not authorized in all cases to dispatch mail addressed in their care destined for ships and organizations serving outside of the United States. The correct procedure as outlined to the writer by a representative of the Post Office Department is for the Commanding Officer of the organization to request the Major General Commandant to obtain the authority from the Post Office Department for the postmaster of the port of departure of mail steamers to make up separate pouches of mail destined for the organization and dispatch these on the regular mail routes. It is suggested, however, that the matter will be expedited if, at the same time, the Commanding Officer write direct to the postmaster concerned advising him of the official request being made and requesting his cooperation. Reference should be made to the presence of a Navy Mail Clerk if one has been appointed, although Navy Regulations provide for the receipt and dispatch of mail through the local postoffice by a regularly detailed mail orderly.

The assignment of personnel to operate the postal facilities will be discussed later. The officer in charge of the postal service, whatever his designation, must give his personal attention to the sorting and dispatch of the mail.* Some mistakes and delays will occur, but they must be kept at the minimum. Failure in this regard will cause dissatisfaction among the personnel at the outlying posts and a considerable amount of unnecessary correspondence for the organization headquarters when "Johnnie" writes home that he has never received a long ago sent parcel or letter and his fond parents take the matter up with their congressman or senator.

In the same category comes the question of Class E messages via the Naval Communication Service. Authority to send this class of messages in the Navy Net should be obtained before reaching the theater of operations. It is remarkable to observe that some communication officers and some senior officers as well, regard this service as a mystery and a chore to be avoided. Such an attitude, when encountered, should be promptly and definitely checked. Communication Instructions U. S. Navy provide for this class of messages under proper restrictions and protect the priority of official messages and the infinitesimal amount of labor involved should not be permitted to weigh against the value of the service rendered to the personnel.

There are two schools of thought regarding the preparation of personnel records and reports of companies stationed "in the bush" i. e. away from District or Battalion Headquarters and without good communication thereto other than radio. One method is for the company clerk with the records, field desk and typewriter to accompany the unit wherever it goes. In this case the company commander retains supervision over, and responsibility for, the preparation of the records and reports. The other method is for the company clerk to remain at battalion or higher headquarters with the company records, desk and typewriter and to prepare all records and personnel reports there. The officers

*See Marine Corps Manual, Chap. 1, Arts. 65 and 66; Navy Regulations, Chap. 20; Bureau of Navigation Manual, Arts. D-5305 to 5311, and Post Office Department Pamphlet "Instructions for the Guidance of Navy Mail Clerks and Assistant Navy Mail Clerks."

actually in the field are responsible only for rosters and reports of changes. The latter can be transmitted by radio. The former, prepared periodically and transmitted when opportunity offers, serve as a check on the latter. By detailing staff or transient officers at the base to command the rear echelons of one or more companies, all of the paper work can be expeditiously and efficiently prepared and the officers actually in the field relieved of this burden. Furthermore, the company commanders feel that they have a representative at higher headquarters and the actual administrative work is reduced, since men returning to the base for hospitalization or further transfer are not transferred out of their company so long as they remain in the district and the payment of such men is not delayed if they happen to reach the base about the end of the month.

In connection with the practical working of the method just described, but more particularly as an example of how disbursing officers can aid morale without placing themselves in jeopardy, the following comments by an Area Paymaster in the 2d Brigade, U. S. Marines, Nicaragua, are of interest:

"There are eight organizations* rendering payrolls to this office. Seven of these rolls are made up at this station. This greatly expedites auditing the rolls and paying the troops. Payment is made in cash in such amounts as desired, or by check if requested. Few of the men want more than five or ten dollars each month, and due to local conditions this amount is paid them in one dollar bills as change is difficult to obtain where most of them are serving. The money is delivered or dropped by aviation, and cash receipts brought in by the same means. Payrolls are not sent to detachments. There have been no losses in the transmission of funds. Men coming in to Headquarters Station are permitted to draw pay to the amount due the last of the preceding month immediately upon arrival. Payrolls are kept open until the 25th of the month following that for which rendered, thus doing away with numerous special money requisitions. Men desiring to send money to the United States are paid by check in whatever amount requested up to the amount due. All men not serving at Area Headquarters are allowed Area Exchange credit checked on the payrolls."

The allotment and distribution of personnel is another matter that claims our attention. Before doing so, however, it would be well to note that the practice of our country seems to have been consistent in one respect at least. When a Small War situation looms on the diplomatic horizon we send the smallest possible force to the scene and build it up later, as the situation develops, by successive increments. Whether or not this procedure is sound is beside the point now; it is sufficient to note here that it has been our almost universal practice, and, since it is not a matter within our control, will probably so continue. Also it has been unusual in the past for any force larger than a company to remain concentrated in one place for very long.

Considering first, therefore, the case of a single rifle company acting alone, we are immediately confronted with regulation and custom which decree that the company commander shall be mess officer, and in the absence of an officer of the Quartermaster and Paymaster Departments, the accountable officer and finance officer as well. To be sure training manuals advocate assigning the actual operation of these services to the lieutenants, but the captain retains the financial responsibility nevertheless. This may be satisfactory when a company is on garrison duty in the United States, but on an expe-

dition where the company commander is likewise Commanding Officer of the force ashore, he will have quite enough to keep him occupied in keeping in touch with the military and political situation, interviewing native and foreign civil officials, conferring with the Senior Naval Officer Present Afloat, becoming familiar with the terrain and preparing plans for the best utilization of his command, without adding to his time consumers such routine matters as checking payrolls, devising menus, making local purchases, verifying clothing records and procuring candy and tobacco for the command. The first lieutenant of the company should be competent to attend to all of these matters and should be detailed as the administrative officer of the company, charged with all material and financial responsibility and accountability, the operation of the mess, and of the company exchange, the preparation of personnel records and reports (other than semi-annual markings and fitness reports) and the receipt and dispatch of mail. The company commander would retain the same responsibility that any other Commanding Officer possesses:—i. e. that his subordinate performed his duty efficiently. If, at the end of a month, or during any other period, one officer were tied to a desk at company headquarters, it would not be, under this plan, the captain of the company.

In order to best administer the company under this plan, it is believed most desirable that an additional officer be assigned to a company comprising the entire force, but where this is not practicable it is still considered to be the best policy to assign all administrative duties to one of the junior officers rather than to the company commander. As for enlisted personnel, the addition of one of the company runners to the regular administrative personnel of a company; Company Supply Sergeant, Company Clerk, and Mess Detail, is, under most conditions, sufficient and no further increase appears necessary. If the company supply sergeant is not familiar with Quartermaster-Paymaster procurement and accounting, he should be exchanged, if opportunity offers prior to sailing, for a non-commissioned officer who has had some experience in these matters. If this is impossible the administrative officer must train one of his detail in these matters as he goes along.

Radio furnishes the best, and frequently the only, means of communicating with the naval ship or station, as well as with detached posts, patrols and other points. Trained radio personnel must be obtained, and in most cases, can be obtained by exchanging the company signal corporal and one of the company runners for trained operators. At least one of the operators should not only be capable of setting up and operating a set, but likewise of maintaining it in operation. If circumstances do not permit obtaining trained radio personnel from the battalion, regimental or brigade communication platoon or from the Signal Battalion in the United States, it is sometimes possible to borrow a radioman temporarily from the ship of the navy lying off the base port, but in this case at least two men from company headquarters should immediately be put in training for duty as radiomen.

When a Force consists of a single battalion, the Battalion Headquarters Company requires reenforcement to provide personnel for the necessary administrative functions, and such reenforcement should *not* be taken from the line companies. One lieutenant to serve as Head-

*One Battalion Headquarters Company, Three Rifle Companies, Four Marine Detachments from ship. (Author's note.)

quarters Company Commander, Battalion Exchange Officer, Base Mess Officer and Postal Officer is very desirable. If an additional officer cannot be obtained, these duties can be divided between the battalion adjutant and the battalion communications officer as "additional duty," but it will keep them both very much occupied.

The addition of one Quartermaster Clerk as assistant to Bn-4 is also desirable as it permits the sending of Bn-4 to visit outlying posts, inspect and obtain firsthand information of their needs.

Whether or not additional officer personnel is obtained there should be additional enlisted personnel provided as follows:

One non-commissioned officer, Navy Mail Clerk;

One non-commissioned officer, Exchange Steward;

Nine enlisted for the Quartermaster and Paymaster departments, viz:

Office Chief, Shipping and Receiving, Finance, Ordnance, Subsistence, Clothing, Property, Procurement, Returns.

Of these at least the first three should be non-commissioned officers and one a qualified armorer.

While the foregoing comments apply particularly to situations wherein the entire Expeditionary Force consists of but a single battalion, they are in general applicable to a battalion occupying a district or area of a country where communication with Force Headquarters or the base are poor. The governing factor to be considered is, that whatever additional administrative personnel is *necessary* (and it should be restricted to the irreducible minimum) should *not* be drawn from the line companies, but from higher echelons; regiment, brigade or, if necessary, from the United States. It will be noted that no increase is recommended for a company and only two officers and eleven enlisted for a battalion. This is not excessive, but nevertheless even this number should not be drawn from the combat companies. No reference has been made to transportation personnel for the reason that the qualifications and number of these required depends upon the amount and character of the transport to be employed. This question will be discussed in a subsequent chapter.

When the Force consists of only one company it should have a medical officer attached to it. Otherwise it must depend upon the naval ship on station or upon local civilian doctors, neither of which methods is entirely satisfactory. A battalion serving alone should have another medical officer and at least three, and preferably more, additional pharmacist's mates. The battalion commander should lend every possible assistance to the battalion surgeon in securing as large a proportion as possible of rated men qualified for independent duty.

A "Detached Regiment" has no officers specifically assigned as Exchange Officer or as Postal Officer and the Headquarters and Service Companies are commanded respectively by the R-1 and the R-4 of the regiment. It must be borne in mind that in the vast majority of cases in Small Wars no regiment has remained for any length of time assembled in one place. Situations to the contrary such as Vera Cruz in 1914 and China in 1928 are exceptional. Then too, the more scattered the units of the regiment are, the greater will be the demands

upon the administrative personnel. While the two lieutenants in the Service Company can presumably be detailed as Regimental Postal Officer and Regimental Exchange Officer, it is believed it would be far better to assign two additional officers to a regiment acting alone for these duties, such officers also to command the two administrative companies, and thus relieve R-1 and R-4 from all duty other than their legitimate staff functions, while at the same time releasing the two lieutenants of the service company to them as assistants.

So far as a brigade is concerned, General Butler has covered the ground in his final report of the operations of the Third Brigade in China,* but some of his remarks will bear repeating, if only for emphasis. Some of these, with comments thereon, are as follows:

a. B-2 be a Field Officer.

The importance of the duties devolving upon this officer, and the reliance that must be placed upon his work, are such that he should be an officer of much experience and sound judgment.

b. Increase the Second Section of the Brigade Staff.

If the brigade were part of a larger unit the present allowance would be sufficient, but when serving alone, as is usually the case in the Marine Corps, the B-2 should have one or more assistants.

c. There should be sufficient junior communication officers to permit having a communication Watch Officer on duty at all times at Brigade Headquarters.

So long as the brigade remains intact, the assignment of the Communication Officers of the lower units as Communication Watch Officers is practicable, but if the brigade takes the field, or if regiments and battalions are sent away from Brigade Headquarters to garrison other areas, they will be needed with their organizations at the very time that the need for Communication Watch Officers is most acute.

d. A Military Police Company should be part of a Brigade serving alone.

Combat organizations should not be robbed to provide Military Police. Organization Tables provide for such a company although it appears that the practice has been not to provide one for our brigades. In most Small War situations it would seem that a platoon attached to the Brigade Headquarters Company for pay, rations and muster would be sufficient.

e. B-4 should have three assistants.

Unless the Fourth Section of the staff functions efficiently the commander will be unduly hampered in the execution of his mission. A reinforced brigade acting alone in Small Wars is in a position very different from one serving as a part of a division. It is interesting to note that General Butler recommends three commissioned assistants for B-4, and that this was the number actually assigned in the Second Brigade in Nicaragua, although the latter was serving under entirely different conditions from the Third Brigade in China.

Manifestly, the foregoing comments have touched upon only a few of the many and varied functions of the Personnel Section. Promotions, transfers, legal matters and a host of others are covered in existing manuals. It is hoped that the most important ones, and those most likely to be overlooked, have been mentioned, and that their reiteration here will prove of benefit to at least some of the readers.

*Notes on Staff Activities of Third Brigade, U. S. Marine Corps, Serving in China, By Brigadier General Smedley D. Butler, U.S.M.C., published in the Marine Corps Gazette, June, 1929.

What the Marine Corps Reserve is Doing

BY COLONEL JAMES J. MEADE, U. S. M. C.

TO THE EDITOR OF THE MARINE CORPS GAZETTE:

I have read the reports of this summer's training of the Marine Corps Reserve with a great deal of interest, pride, and pleasure.

The reports show that this organization is doing good work. It is upward and onward with them. Their improved efficiency in marksmanship and combat training, their loyalty in their attendance at their armory drills, which they do voluntarily, and their conduct have been remarkable and the cause of favorable comment in many reports and from many sources. As Major General Commandant, I want to take this opportunity to congratulate the officers and men of the Marine Corps Reserve on the fine work they are doing and to commend them for the valuable services they are rendering the Marine Corps, the Country, and their real contribution to National Defense.

B. H. FULLER,
Major General Commandant.

■ In the last issue of the GAZETTE, I stated what Reserve encampments had been authorized this summer and also gave the details of the encampments where reports had been received. In this issue, I propose to write details of the camps not covered in the previous article by quoting from the reports of the inspection boards and reports of the observers, giving my personal observations where it is possible, and expressing my opinions where necessary. I hope this information will give the service some idea of what this important arm of the Marine Corps is doing.

Because of economy, the Marine Corps Reserve is operating under a terrific handicap this fiscal year. The material cut in appropriations prohibits active training organizations receiving their full two weeks' training with pay so that it has been necessary to cut the training to 10 days with pay and 4 days without pay, the government providing rations only for the remaining 4 days, and to cut the number of men trained approximately one-third. This action is to be regretted of course. However, the Reserve has taken this cut with its head up and to date has turned out in splendid shape for the encampments and shown that fine spirit which has always characterized Marines.

TRAINING AT SAN DIEGO

The First Battalion, 25th Reserve Marines, from Los Angeles, Calif., and vicinity, Major John J. Flynn, Commanding, with 12 officers and 136 enlisted men,

reported at the Marine Corps Base, San Diego, Calif., on June 11, 1933, for 14 days' active duty and training.

Major Thad T. Taylor, U.S.M.C., was the chief observer of this training. A very comprehensive schedule of training was mapped out and carried out to the letter. This included an intensive course of firing at the range, bayonet instruction, and close and extended order drill. As well, instruction in boats, embarking and disembarking and nomenclature of boats was given the Reservists prior to the landing operations which followed.

The field exercise was conducted on June 1, 1933, and called for a battalion in attack. This problem included the actual landing of troops in a situation in which the enemy held the Marine Corps Base. With the cooperation of the Naval Training Station the Battalion was provided with motor boats and their crews to effect the landing. Beach markers were erected, shore and beach parties were simulated by men from the Base troops. The problem went into some detail as to communications for the purpose of illustrating their operation. The Commanding Officer of the regular Signal Company at the Base worked out a plan for signal communication which plan was carried out by the 2nd Signal Company personnel. The Battalion was further assisted by members of the Machine Gun units of the Base who actually set up guns and took part in the operations. Prior to the exercise a conference was held in which all sides of the problem were fully discussed. The chief observer re-

ports: "It was very interesting to note the spirit with which the officers and men went about the problem. The actual landing operation was done in excellent style and highly complimentary to the Reservists." Following the disposition of troops they were permitted to inspect the communication net, the message center, and the machine gun emplacements.

A second problem occurred on the 19th of June which involved the principles of the defense of a shore line. Like the previous problem signal troops and machine gun troops of the Post augmented the Reservists. The same plan of discussion and inspection of the dispositions in the problem was used. It was quite satisfactory. The Battalion also received first aid and personal hygiene instruction, and was given an opportunity to visit the Marine Corps Aviation Command at North Island, escorted through the hangars and offices which were under Marines and the officers were offered an opportunity to take flights.



COL. JAMES J. MEADE, USMC
Officer in Charge of Reserves

Instruction was also given in all the infantry weapons.

As a result of the firing of the .30 calibre rifle there were 98% qualifications on the range, and as a result of the pistol qualifications there were 96% of qualifications. This is a very, very commendable showing, highly commendable to the Battalion Commander and his officers. The Battalion did not neglect the more formal side of training as the 2 weeks in camp were interspersed by battalion parades and reviews so that the training of this battalion was highly satisfactory, and a very favorable impression was made on the regular personnel, and the Reserve personnel left San Diego greatly impressed with the fine treatment they received and the valuable instruction imparted to them.

The Commanding General of the Base, Brigadier General Frederic L. Bradman, U.S.M.C., states a high standard of conduct was maintained by the Reservists while at his post. He further states it is considered note-worthy that the Reservists requested and took military instruction in subjects which, for lack of time, could not be included in their training schedule.

TRAINING AT MARE ISLAND, CALIF.

The Second Battalion, 25th Reserve Marines, from San Francisco and vicinity, with Lieutenant Wallace T. Breakey, commanding, 5 officers and 61 enlisted men, reported at the Marine Barracks, Navy Yard, Mare Island, Calif., on the 11th of June for 2 weeks' active duty and training.

Lieutenant Colonel Arthur Racicot, U.S.M.C., was the chief observer of this training. The Battalion carried out a very carefully planned schedule of training with close and extended order drills, ceremonies, rifle marksmanship, and field exercises. The chief observer reports that the Reservists made an excellent showing in appearance and behavior, and considering their very limited opportunity of training throughout the year and their short period of training here at the post the military efficiency obtained is commendable. In respect to the officers and senior non-commissioned officers Colonel Racicot noticed in tactical problems that their training is mostly obtained from text books with little opportunity to study along the applicatory method. He further remarks that this condition usually results where there is no opportunity for the officers and non-commissioned officers to work together in working out problems. He recommends that if it is practicable to allot time to it that problems be worked out on a sand table or a large scale map. This kind of study he believes makes an excellent transition from armory drills to field exercises.

The discipline, morale, and health of the Reservists during the 2 weeks' training was excellent. As a result of their range firing 4 officers and 46 enlisted men firing the following qualifications were obtained: 18 experts, 10 sharpshooters, 19 marksmen, and 3 unqualified. This is a very commendable showing.

The writer agrees with the instructor-inspector that the regular officer on duty with this organization should prepare the command at the armory for their field exercises by exercises involving the squad, section, and platoon, which may be done in sand table problems preferably, or on a large scale map. In this way the Reservists will get a better idea of the field problems they have to carry out.

TRAINING AT PUGET SOUND

The Third Battalion, 25th Reserve Marines, from

Seattle, Wash., and vicinity, with Major William O. McKay, commanding 7 officers and 89 enlisted men, reported at the Marine Barracks, Navy Yard, Puget Sound, Wash., on the 11th of June, 1933, for 2 weeks' active duty and training.

Captain Ray A. Robinson, U.S.M.C., was the chief observer. The Battalion carried out a very intensive schedule of training covering close and extended order drills, ceremonies, rifle marksmanship, and battalion in attack of a beach line and in defence of the shore line. The Battalion, as well, qualified on the bayonet course with 100%. In rifle course "D" the Headquarters Company qualified 25% sharpshooters, and 75% marksmen; Company "I" qualified 9% experts, 13% sharpshooters, 59% marksmen, and 19% were unqualified; Company "K" qualified 6% experts, 8% sharpshooters, 63% marksmen, and 23% unqualified as sharpshooters and 43% as marksmen. Eight officers and 8 men fired the pistol course and qualified 84%.

The morale of the Battalion was excellent, unusually high. Captain Robinson states the men were keenly interested and even after a long day of drills and maneuvers remained on the field after recall trying to perfect themselves on some movement or to settle some point about which there was a difference of opinion. For amusement the men had the facilities at the Post available such as the swimming pool, movies, base ball, etc. The Battalion during the firing on the range camped at the range and while there they put on their own smoker and organized an orchestra.

One of the high points of the training was the landing exercises and the defense of the shore line. The Battalion did well in both exercises.

There is no doubt about it the Reserve Battalions are showing decided improvement in their rifle marksmanship and in their field exercises, both indicate that the officers are giving a great deal of time and thought to study before going to training, and that the men are receiving very careful preparation for range work in their armories. In order to get the best results both steps are absolutely necessary. At the armories the men have plenty of time to be carefully and properly instructed in rifle marksmanship. If they wait until they get to their 2 weeks' training their schedules are so full with other drills and exercises that they skim over the preparation for the range work and as a result their qualifications are low. The same principle applies in training for field exercises. It is necessary to prepare in combat principles through the correspondence courses and by instruction in map problems, conferences, terrain exercises, etc., during the armory training.

TRAINING AT BOSTON

Company "A," 19th Reserve Marines, from Boston and vicinity, Captain William J. McCluskey commanding, with 2 officers and 45 enlisted men, reported at the Marine Barracks, Navy Yard, Boston, Mass., on June 11th for 2 weeks' training.

The Company carried out a very complete schedule of close and extended order drills, combat training, scouting and patrolling, and rifle marksmanship.

Second Lieutenant Chandler W. Johnson was assigned to the Company as observer and instructor. He reported that he found the appearance of the officers and men to be very good, and that the arms and accouterments were in very good condition, and, as well, that the men were interested and enthusiastic

over their training at Boston. The Company spent the last 3 days of their training at Wakefield, Mass., where they fired the modified Course "D" with the .30 caliber rifle on the range there. Their firing on the range was excellent, and they made a high percentage of qualifications.

Lieutenant Colonel F. A. Barker, commanding officer of the barracks at Boston, inspected the Company and reported that he found the officers and men in very good shape. He said that Captain McCluskey, the company commander, was very much pleased with the results of the training program at the barracks, that the men enjoyed the experience of serving at a regular Marine Barracks with the regular Marine Corps, and that it made them feel that they were regular Marines.

TRAINING AT QUANTICO

The Sixth Marine Reserve Brigade from Washington, D. C., Maryland and Virginia, Lieutenant Colonel J. J. Staley, commanding, with 60 officers and 588 enlisted men, provisionally organized into a regiment consisting of Headquarters, Special Troops, and three battalions, arrived at Quantico, Va., from Washington, D. C., on Sunday, 6 August, 1933, for their training. The troops debarked in an expeditious and orderly manner and marched to the billets assigned them in barracks "B" and "C." These barracks had been prepared for occupancy by an advance party of 1 officer and 16 men.

This command carried out a very carefully prepared training schedule of close and extended order drill, range practice, ceremonies and field exercises, landing operations and defense of a shore line. The command qualified 53% of those firing at Quantico on the .22 caliber small bore, 56% of those firing with the .30 caliber, course "D," and 67% of those firing with the pistol, long course.

A tactical problem involving the Battalion in attack (Battalion as part of a force engaged in seizing a beach-head line) was given on successive mornings to officers of the three battalions. The situation and requirements were given in the form of a terrain exercise. The problem was handled as follows: The Battalion officers were assembled on the beach in the ship yard area and given the situation and the first requirement and required to submit their solution. An approved solution and discussion was given by the instructor. Succeeding situations were handled in a similar manner with the officers moving from point to point as the problem progressed. Upon completion of the solution of the problem by the Battalion officers the personnel of two of the Battalions were put through the problem under command of their own officers.

The report states that the officers showed a keen interest in the problem.

The organization witnessed a demonstration of a landing on a beach from small boats by a unit of the expeditionary battalion on 8 August. The Reserve organization profited by this example as shown by the execution of a similar problem landing from small boats on the 11th of August. In this problem they carried out the following steps: Simulated embarking in small boats from a transport by descending a cargo net rigged on a platform on the barge; made approach and deployment to the beach in boats, and made landing protected by a smoke screen laid down by the

Quantico air force. The entire maneuver was capably directed and very well executed. They also simulated the seizure of the first objective which was defended by units of the Reserve Provisional Regiment.

Following seven days' intensive training at Quantico the Regiment embarked on Saturday, August 12, in small boats at the Quantico wharf and proceeded in two relays across the Potomac to Posey's Wharf on the Maryland side, where they landed from the 50-foot motor sailer equipped with ramp. The embarkation and debarkation was accomplished in an expeditious and orderly manner.

The organization went into camp that night at Rum Point on the Indian Head reservation, where they remained over Sunday and on Monday started the march by easy stages to Fort Washington. At Fort Washington they embarked by boat for Washington, D. C., where they were marched to the armory and disbanded.

The conduct of the march and march discipline was generally very good. The sites selected were satisfactory. They made and broke camp expeditiously, set up their latrines, galleys, medical units, etc., in a very quick and proper way so that they learned some very important lessons as a result of this training.

After leaving Quantico and while on the march the Sixth Brigade Band, under the direction of Lieutenant Leon Brusiloff, furnished music and entertainment for the personnel.

The Medical Detachment of the force, under the direction of Lieutenant Commander Don S. Knowlton, (MC) U.S.N.R., rendered conspicuous service. Commander Knowlton had with him assisting him as Brigade Sanitary Officer, Lieutenant W. L. Schafer, as Battalion Surgeon of the First Battalion, Lieutenant Howard H. Strine, as Battalion Surgeon of the Second Battalion, Lieutenant Philip A. Caulfield, as Battalion Surgeon of the Third Battalion, Lieutenant F. R. Shea, and as dental officers Lieutenants L. M. Lucas and A. V. Corcell.

The enlisted personnel of the Medical Detachment are all Marine Corps Reservists enlisted for 4 years in the Fleet Marine Corps Reserve. The total strength allowed the Detachment is 35, the total men at the training camp was 35.

The Sergeant Major, Robert L. Jenkins, has had former service in the Medical Department, U. S. Navy. First Sergeant James N. Shippee, who has made four training camps with the Sixth Brigade, graduated from Georgetown Medical School, June, 1933, and is at present an interne at the University Hospital. Sergeant Alfred M. Palmer was graduated from Georgetown Medical School in June, 1932, interned at Cleveland City Hospital 32-33 and opens his office to practice medicine on his return from this camp. Corporal Francis D. Dean begins his fourth year in medicine this fall at Georgetown Medical School. Corporal Paul J. Kelley has completed his pre-medical work and enters Georgetown Medical School this fall. Private First Class Jack D. Pitts is a second year student at University of Georgia, College of Medicine. A number of the remaining personnel are college and high school students.

The Medical Detachment was organized into Headquarters and three Battalion Medical Detachments. Headquarters consisting of five men, and taking care of paper work, reports, health records, etc., the Bat-

talion Medical Detachments function with the Battalion under the supervision of the Battalion Surgeon. In camp and in the field, these groups ran the twelve-bed hospital and the dispensary. On inactive status, the entire Medical Departments function at their dispensary, 458 Indiana Avenue, N. W., Washington, D. C., two nights each week throughout the year as a recruiting detail handling the finger printing, health records, reenlistments, etc.

The Board of Inspection reported the medical troops functioned especially well giving especial care to the feet of the personnel on the march, and furnishing ambulance service with the 2 motor ambulances owned by the Reserve. The Board further states that the enthusiasm and morale of all the medical personnel was especially noteworthy during the entire engagement.

A Communication Platoon of 2 officers and 24 enlisted men, the Mrigade Communication Platoon, Captain W. B. W. Stroup, commanding, reported to the First Signal Company for training in the agencies of the Signal Platoon. The Platoon received very careful instruction in signal communications, and the report of Captain Groff, who had charge of this training, states that the capacity and willingness for work and the desire and will to learn greatly relieved the handicap of lack of technical knowledge and skill.

Brigadier General Breckenridge, Commandant, Marine Corps Schools, accompanied the organization on the march and a section of the Machine Gun Company composed of regular Marines under Captain William Ulrich, and 1st Lieut. John C. McQueen, U.S.M.C., members of the combat field equipment board, accompanied the Brigade throughout the exercises. Captain Ulrich and Lieutenant McQueen's men were experimenting with means of carrying machine guns on the march.

The Commanding General, Brigadier General Harry Lee, U.S.M.C., and his officers and men at Quantico, extended every available facility to the Reserve organization and assisted them in every way to make their stay pleasant and successful. Information from members of the organization was to the effect that the reception and treatment at Quantico was such that they were very much pleased and desired to return there for future encampments.

The Commandant, Marine Corps Schools, General Breckenridge, and his officers extended the school facilities and officers and senior noncommissioned officers of the schools delivered lectures to the provisional regiment. These lectures aroused considerable interest among the Reserves.

Lieutenant Colonel Calhoun Anrum, U.S.M.C., was the senior member of the Board of Inspection on duty with the provisional regiment and was assisted by Major Thomas E. Thrasher and Captain J. W. Webb, U.S.M.C., advisors-instructors assigned duty with the Sixth Brigade were on duty with the provisional regiment during its training.

Commanding General, Marine Barracks, Quantico, Va., in forwarding the report of the Board of Inspection, stated that it was his observation that the entire Brigade during its stay at Quantico showed marked interest and ability in all of the work. He states he was very glad the Reserves came to Quantico; it was a real pleasure to have noted the enthusiasm and interest shown by the Reserves in the pursuit of knowl-

edge of the work of the Marine Corps. He commended the Commanding Officer and his staff and the members of his command for their fine military appearance, and excellent work.

TRAINING AT GREAT LAKES STATION

The 24th Reserve Marines, from Chicago, Detroit, Toledo, and vicinity, under command of Major Chester L. Fordney, F.M.C.R., with 22 officers and 287 enlisted men went into training at the Naval Station, Great Lakes, Ill., 13 August to 26 August, 1933.

This organization carried out a very carefully planned schedule of training. This included close and extended order drill, ceremonies, rifle marksmanship and attack and defense problems.

Rear Admiral Wat T. Cluverius, U.S.N., Commandant, 9th Naval District, reviewed the Regiment on August 19th and commented on the excellent appearance of the organization. As well, on Wednesday, August 23rd, the Regiment paraded on the terrace of the Hall of Science at the Century of Progress, Chicago. Medals were presented to two members of the Regiment with appropriate ceremonies and the review taken by Rear Admiral Cluverius which was followed by a brief talk by him which was broadcasted on a radio hook-up from coast to coast. His talk was most complimentary to the Corps and to the 24th Reserve Marines.

The organization made a great improvement in rifle practice, qualifying 62½%. One of the companies, commanded by First Lieut. Walter A. Churchill of Toledo, qualified 85 9/10%, and that is something to shoot at. Captain M. H. Silverthorn, U.S.M.C., advisor-instructor, was on duty with the Regiment during its training, and Quartermaster Sergeant Richard Stone and Sergeant Richard Duncan, U.S.M.C., also.

The Board of Inspection for this force consisted of Colonel J. J. Meade, Major J. C. Fegan and Lieut. J. H. Bryson.

The combat training of the 24th Reserve Marines culminated in a regimental attack problem on August 25th. After reconnoitering the available country-side the regimental plans and training officer, Captain William J. Platten selected a site about one mile from camp for the problem. The ground was open country with a shallow valley on the west, contained clumps of trees and a wooded knoll. The situation assumed a state of war between Illinois and Wisconsin existed. The 24th Reserve Marines were part of the First Marine Division which had invaded Illinois from the north for the purpose of capturing the Century of Progress. The Regiment cleared camp at 8:00 a. m. and marched to the selected terrain. On the march security was provided by the second battalion.

As the regiment neared the scene of the problem the Regimental Commander, Major Chester L. Fordney, received information that an enemy force slightly inferior was holding a position along the Downey Road, west of Green Bay Road, and had strongly organized a position in the woods on Hill 735. After moving forward, and observing the terrain, the regimental commander issued his attack order. The Second Battalion was designated as the left assault battalion and the Third Battalion (assumed in this case) was the right assault battalion. The First Battalion was designated as regimental reserve. The assault

battalions were ordered to drive the enemy from Hill 735 and to secure Downey Road. The battalion commanders were called forward and given twenty minutes to observe, reconnoiter and issue orders. The company commanders were given ten minutes to reconnoiter and issue their orders.

At 0920 the attack was launched. The Second Battalion, under Major Iven C. Stickney, attacked with two companies in the assault and one in reserve. The battalion moved forward during the attack in good formation. All communication was maintained by runners. The battalion made full use of all cover afforded by the terrain and arrived at its first objective (a hedge about 500 yards from the line of departure) at about 0940. The first objective was about 200 yards from Hill 735 (the strongly occupied enemy position). At this point an umpire informed the battalion commander that his battalion was suffering severe losses and could not advance. The battalion commander called upon his reserve company and attempted an enveloping movement. The umpire soon notified the reserve company that it was suffering severe losses and was unable to advance. A message was sent to the regimental commander informing him of the situation and the assault battalion dug in on their position. He immediately issued orders directing the reserve battalion under Major Donald Winder to envelop the enemy left and attack in a south-easterly direction. The reserve battalion was ordered to attack in depth, with one company in the assault.

Upon receiving his orders, the reserve battalion commander moved his battalion south and down the shallow valley. By making use of the cover which the terrain afforded, and by keeping concealed in the valley, the enemy did not observe the reserves' approach. When about 200 yards from the enemy strong point on Hill 735, the reserve battalion commenced the assault. The assaulting battalion, having been in communication with the reserve battalion, launched its assault also. Both battalions moved forward under cover of assault fire until about 40 yards from the woods when they broke into a run and routed the enemy with the bayonet, thus completing the problem.

The enemy was outlined by flags and by four drummers, who kept up a steady roll on the drums to simulate machine gun fire. As the assault commenced the flags were lowered one by one and the drums were silenced.

After the problem the regimental commander conducted a critique. The regiment was then assembled and marched back to camp arriving there about 11:30.

On Friday, August 25th, a final inspection and review was conducted by the Board of Inspection, and awards were made as follows:

Silver mounted rifle to Company "F," Lieutenant Churchill, commanding, for the highest percentage of rifle qualifications in his company.

Silver cup to Gunnery Sergeant Waldeck for the highest individual caliber .30 qualification during the target year.

Individual medals were awarded to members of Company "E," Detroit company, for rifle marksmanship qualifications. These awards were confined to members of this organization as the competition is a local one.

Pharmacist's Mate 3rd Class Albert G. Mayer was

commended for his prompt and efficient rendering of first aid to certain civilians who were injured in an automobile accident which occurred just outside the reservation gate.

On Saturday, August 26th, the Regiment broke camp the organizations returning to their home stations happy over the fact that they are part and parcel of the Marine Corps.

TRAINING AT NEW YORK

The Navy Yard Guard Reserve Detachment from New York City, Captain B. S. Barron in command, with 2 officers and 36 enlisted men, reported in for two weeks' training at the Navy Yard, New York, on August 13, 1933. Major Frank Whitehead, U.S.M.C., temporary commanding officer of the Barracks, had charge of the training of this organization.

The organization carried out a very carefully planned schedule of training covering close and extended order drill, rifle marksmanship, ceremonies and a simple problem which demonstrated their proficiency in fire discipline, control by squad and platoon leaders, and communications. The problem carried the company through an attack from route column to the consolidation of the position. Throughout the problem officers and non-commissioned officers displayed a degree of ability to grasp a situation, issue orders and have these orders promptly executed.

The reports of this training shows that a comprehensive course of range practice was carried out which resulted in qualifying 31 of the 34 men who fired for record with the .22 caliber rifle.

The inspector-instructor reports that the company is a happy unit, intensely interested in their work and that they have set an example in deportment, cleanliness, subordination, which creditably reflects the example set them by the instructions received from their officers and noncommissioned officers.

Captain Barron, the commanding officer of the organization, states the gratifying results of the .22 caliber firing is due primarily to the fact that the men who coached the shooters took the infantry weapons course at Quantico this June, and the very valuable knowledge of shooting learned there was imparted to the men of the organization, together with the fact that consistent simulation was indulged in for an entire week of practice given shooters by excusing one relay of five men from each of the six daily periods of their training. He further states that on September 16th the company is running a social affair at the Navy Yard where they have very elaborate quarters and that this affair will be attended by approximately 800 people who will dine and dance, and at that time it is hoped the qualification insignia will be awarded to the officers and men qualifying in their range practice.

This summer's training is now a matter of history. It has been a very successful one, a great improvement having been made in rifle marksmanship and combat training. The Marine Corps Reserve is gradually reaching that standard of readiness and fitness which the Corps must require if we can expect the Reserve to function at the emergency. As one of our great Commandants said we must have an efficient, well trained Reserve as this is the only kind of a Reserve that will be of value to the Marine Corps in time of need.

The Hazard of Human Flight

By FIRST LIEUTENANT KENNETH B. COLLINGS, U.S.M.C.R.

■ The probable span of human life and the prospects of untimely death have always been of paramount importance to mankind.

Vital statistics, particularly ages at death, have been handed down to posterity where all other information concerning historical characters has been lost.

Important among present day results of these many century old statistics, are the American Experience Mortality Table, and the American Men's Mortality Table.

They may be numbered among the most accurate mathematical tables in the world. The American Experience Table was entirely accurate up to about forty or fifty years ago. At this time certain factors seemed to be effecting a change to a better, or lower, mortality rate at the younger ages, and the American Men's Mortality Table has developed as the result of observation. The two tables coincide, in most cases, at the older ages, starting at about the age of sixty.

Any life insurance actuary can tell you by a glance at the American Men's Mortality Table, that given a group of 10,000 male lives at age 35, selected as acceptable life insurance risks, that 31.6 will be dead within one year. If the risks be non selected (i. e. not examined within five years) the number of dead at the end of one year will be 47.80. In studying pilot fatalities in aviation we do not need to give much consideration to the non selected group, as frequent rigid physical examinations assure a standard among pilots, at least as good, if not better than life insurance selected lives. It will be necessary, however, to refer to the non selected group in comparison with passenger fatalities, as this class may be in any condition of health.

No actuary claims that he can tell which individuals in the group will die, but the numbers involved do not vary to any appreciable degree.

When a group of men associate themselves with an occupation, more hazardous than normal, unusual mortality statistics are quite likely to develop. The life insurance companies make every effort to keep reasonably abreast of these groups, but by the very nature of the business they must always be at least slightly behind. This is due to the fact that they cannot make rates until they have watched the mortality experience of the particular group. The fact that all new enterprises go through an experimental stage in their early years, adds to the difficulties. During this stage the extra mortality is likely to fluctuate so much that no fair average can be obtained. After a few years conditions become more standardized, the fluctuation dampens out, and the mortality statistics begin to have some value as a criterion of the risk involved.

Aviation is probably the outstanding example of this handicap. There have been many extra hazardous occupations in the past, but it is only in the last 30 years that any appreciable number of men have taken to the air and started to operate in three dimensions instead of two.

To further the difficulties, in the case of aviation, we have the fact that early flying operations and the

resulting mortality, were not accurately recorded. Men were too busy experimenting, designing and flying, to keep many records. The usual record of deaths was kept, but the necessary record of time of exposure to the hazard of flight was not, and aviation fatalities were not segregated.

Since records have been properly kept, however, the usual violent fluctuation of mortality has been observed, but it now seem to have dampened out to a great extent. We are, therefore, in a position to obtain some fairly accurate data as to the present and probable future hazard.

As flying has become an integral part of our national defense, the Marine Corps, as well as the other branches of the service, have considerable interest in this hazard. It will have to be considered whenever the questions of pay or insurance arise.

Quite a few statistics have been compiled from the standpoint of fatalities per mile flown. These are of little value until converted into their equivalent of hours flown, as human beings live in terms of hours and years and not in terms of miles travelled.

A fast airplane covering more miles in a given hour of flight than a slow one, may have certain characteristics that make its operation slightly more dangerous, but they are not marked enough to assign any definite statistical value. Besides which, as any given pilot may be assigned to fly the fastest airplane on one flight, and the slowest on another, the only real standard seems to be the number of hours during which the individual was off the ground. Let us assume, however, that a given pilot does always fly a certain type of plane, either more or less hazardous than the average. This fact might be of interest to an insurance company in assigning an extra mortality rate for that individual, but as we have to work on averages, some other individual will surely compensate by falling into the class at the opposite extreme, thus inevitably bringing the group back to the average.

We must also keep in mind the distinction between extra mortality on an hourly basis and on a yearly basis. For instance the mortality of regular Army and Navy pilots (excluding Marine Corps) is higher on an hourly basis than that of commercial pilots operating on regular schedule, but because of relatively low annual flying time, the annual mortality rate is lower.

Statistics as to the average age of Naval Aviators are not available. The average age of Dept. of Commerce Transport Pilots holding scheduled air transport ratings, is however, 32. If we assume a one year younger age as applying to Naval Aviators we cannot fall into any material error in any event. The number of deaths per thousand per year as shown by the American Men's Mortality Table of selected risks is 2.98 at age 27 and 3.16 at age 35, for normal non-flying occupation; a difference of only .18. Accepting the figure of 3.01 at age 31 cannot, therefore, effect any conclusions derived therefrom to any appreciable extent, even though the average age may actually be slightly less or greater.

This figure (3.01) should be borne in mind as it will be used as a comparison in many of the following statistics.

The practical application of this figure to the question results as follows: If any life insurance company had to insure 1,000 selected male lives at the age of 31, for \$1,000 each, it would know in advance that 3.01 would die in the first year and that it would have to pay \$3010. in death claims. This would mean that it would have to charge each man \$3.01 for current mortality, i. e., .301% of the amount insured. Other items, of course, such as reserves, expenses, etc., enter into an insurance premium. But these we do not need to consider as they are constant regardless of occupational hazard. The only variable in our problem is the current, i. e., yearly, mortality charge, based on the prospect of death within the current year. We are developing figures which will compare the current normal mortality charge with the necessary current aviation mortality charge.

The following table shows the pilot fatalities resulting from scheduled airway operations in the United States in the past five years.

| | *Miles Flown | Hours Flown | Pilot Fatalities | Hours Flown per Pilot Fatality |
|------|--------------|-------------|------------------|--------------------------------|
| 1932 | 50,932,967 | 442,895 | 15 | 29,526 |
| 1931 | 47,385,987 | 430,781 | 11 | 39,161 |
| 1930 | 36,945,203 | 351,859 | 8 | 43,982 |
| 1929 | 25,141,499 | 251,415 | 21 | 11,972 |
| 1928 | 10,673,450 | 112,352 | 9 | 12,483 |

Examination of the above figures for 1932 will show the following results:

1. 29,526 hours of flying resulted in a pilot fatality or 100% mortality for an individual pilot.

2. 295 hours of flying would, therefore, mean 1% extra mortality and necessitate an extra mortality charge of \$10.00 per \$1,000. per year. (Percentages are of the face value of any life insurance involved).

3. As pilots holding scheduled air transport ratings in 1932 averaged 820 flying hours, by dividing that figure by 295 we find that the necessary extra mortality charge should have been \$27.12 per thousand for the year's flight hazard for an extra mortality of 2.712%.

Pursuing the same method, we arrive at the following extra mortality charges for the other years:

| | |
|------|---------|
| 1931 | \$20.97 |
| 1930 | 18.63 |
| 1929 | 68.90 |
| 1928 | 65.60 |

The effect of proper supervision and control seems to have manifested itself, starting with 1930, so it hardly seems fair to include the extraordinarily bad results of the prior years in a present average.

On the other hand, we must remember that these, and all following statistics, take into consideration only those flying accidents which result in fatalities either immediately or within a comparatively short time. An investigator has also to consider the fact that some accidents, not immediately fatal, result in impairments which shorten the normal span of life. Allowing for this factor, 2.5% or \$25.00 per thousand

*The variation of the ratio of miles flown to hours flown is caused by the fact that the average speed increased from 95 miles per hour in 1928 to 115 miles per hour in 1932.

per year seems to be a fair average of the extra hazard involved in this class of flying.

Comparing this figure with the normal mortality figure of .301%, 3.01 per thousand, or \$3.01 per one thousand dollars per year, quoted above, we find that the extra hazard involved is approximately 8 1/3 times. But that is by no means the end of the picture. This extra hazard was acquired in 820 hours. As there are 8,760 hours in a year, or more than ten times the hours of exposure, it is obvious that were a man to spend the entire year in the air, the chance of his death would be $10 \times 8 \frac{1}{3}$ or more than 83 times normal. Of course no man can do this. The figure however works both ways. Instead of a year in the air, let us divide and take an hour in the air. Again we come to the fact that a given hour spent in scheduled air transport flying is more than 83 times more likely to result fatally than that same hour spent in normal ground occupations.

This seems like a startling figure. It may not be quite so disquieting, however, when we stop to consider that the chance of death at the age of 31, among selected risks, in any given hour, is normally only .00034 in a thousand. 83 times this figure gives us .028 chances of death in a thousand, which is still a slight chance. In the multiples of flying hours required of active pilots it becomes, nevertheless a distinct hazard.

The following table shows the pilot fatalities resulting from Marine Corps flying in the years indicated:

| Fiscal Year Ending June 30 | OFFICERS | | | ENLISTED MEN | | | TOTAL | | |
|--------------------------------|-----------------------|----------------------------|--------|-----------------------|----------------------------|--------|-----------------------|----------------------------|--------|
| | No. at end of Year | Mean of Year's Exposure | Deaths | No. at end of Year | Mean of Year's Exposure | Deaths | No. at end of Year | Mean of Year's Exposure | Deaths |
| 1927 | 52 | 51 | 1 | 20 | 20 | 18 | 0 | 0 | 69 |
| 1928 | 54 | 53 | 6 | 113 | 30 | 25 | 0 | 0 | 78 |
| 1929 | 62 | 58 | 1 | 17 | 23 | 27 | 2 | 74 | 85 |
| 1930 | 82 | 72 | 3 | 42 | 24 | 24 | 0 | 0 | 96 |
| 1931 | 98 | 90 | 4 | 44 | 33 | 29 | 0 | 0 | 119 |
| July 1, 1931 to Dec. 31, | 100 | 50 | *2 | 40 | 32 | 16 | 1 | 63 | 66 |
| Total | 374 | 374 | 17 | 45 | 139 | 3 | 22 | 513 | 20 |
| | | | | | | | | | 39 |

The discrepancy between officers' fatalities and those of enlisted pilots is perhaps due to the fact that important and more dangerous missions are commonly assigned to the former.

However, taking the most favorable mortality possible for pilots from the above table, i. e., the combined figure of 39, and, in order that any possible error shall minimize rather than accentuate the risk, allowing nothing for mortality ultimately resulting from accidents not immediately fatal, the result is worthy of study.

This figure, of course, represents an extra mortality charge of \$39.00 per \$1,000.00 per year. But again, that is the least of the picture. Returning to our normal rate of 3.01 deaths per 1000 per year, we find that by comparison a year spent as a Marine Corps pilot was between 12 and 13 times as hazardous.

* Includes 1 death from being struck by propeller on the ground.

All Naval Aviators averaged 218 hours of flying in 1930, 215 in 1931; and 193 in 1932. 215 hours would, therefore, seem to be a liberal estimate of their average flying time.

Following the method used in analyzing commercial statistics, i.e., dividing the 8760 hours in a year by the 215 hours average flying time per pilot, and then reducing to the risk per hour of flight, we find this figure to be at least 40 times 12, or 480 times the risk of an hour on the ground in normal occupations. If it is desired to reach a comparison with line officers of the Marine Corps, a small error may have to be allowed for due to the fact that our basic figure of 3.01 is for normal occupations, whereas the line officers incur some extra mortality themselves.

The following table shows the pilot fatalities resulting from Navy flying in the years indicated:

| Fiscal Year Ending June 30 | OFFICERS | | | ENLISTED MEN | | | TOTAL | | |
|--------------------------------|-----------------------|----------------------------|--------|-----------------------|----------------------------|--------|-----------------------|----------------------------|-------------|
| | No. at end of Year | Mean of Year's Exposure | Deaths | No. at end of Year | Mean of Year's Exposure | Deaths | No. at end of Year | Mean of Year's Exposure | Deaths |
| 1927 | 472 | 449 | 11 | 24 | 108 | 98 | 547 | 12 | .22 |
| 1928 | 466 | 469 | 13 | 28 | 141 | 125 | 594 | 14 | .24 |
| 1929 | 520 | 493 | 5 | 10 | 173 | 157 | 2 | 13 | 11 |
| 1930 | 614 | 567 | 3 | 5 | 244 | 209 | 1 | 5 | 7 |
| 1931 | 737 | 676 | 5 | 7 | 330 | 287 | *5 | *17 | 963 *10 *10 |
| July 1, 1931 to Dec. 31, | 779 | 379 | 3 | 8 | 349 | 170 | 1 | 6 | 549 4 7 |
| Total | 3033 | 3033 | 40 | 13 | 1046 | 11 | 11 | 4079 | 51 13 |

The death rate of 13 per thousand, of course, represents a minimum extra mortality charge of \$13.00 per thousand per year. By the same methods used previously, we find that a year spent as Naval Pilot 4 1/3 times more hazardous than normal ground occupations, and that a given hour spent as a Naval Pilot is 173 times more hazardous than the same hour spent in normal ground occupations.

That part of the above table pertaining to Navy Officers shows certain characteristics not common to the Marine Corps Table. It will be noted that mortality has shown a marked consistent improvement starting with 1929.

Let us examine the figures under the theory that this improvement will be permanent. This of course, is a presumption only, as the figures for enlisted pilots have not shown equal improvement.

We then find an average extra mortality of 7.5 per thousand or \$7.50 per \$1000 per year. Under this presumption the hazard of Naval Officer Pilots would be 2 1/2 times normal on an annual basis and 90 times normal, on an hourly basis.

Another combined table compiled from statistics showing Navy and Marine Corps Officer Pilot fatalities only, for the past three years, shows the expected result of a mortality hazard higher than the Navy average but considerably lower than the Marine Corps Average, due to the numerical superiority of the former. The average extra mortality in this case is 10 per thousand, or \$10.00 per \$1,000 per year.

The Regular Army mortality rate on an annual basis has been slightly better than the Navy rate for the years 1927 to 1931, having averaged 11 per thousand or an extra mortality hazard of \$11.00 per \$1,000 per year.

Figures as to Reserve pilots of the Navy and Marine

Corps not on active duty have a deficiency which precludes accurate estimates as to the hazard, per hour, involved. The available statistics show only the minimum of 45 hours which they are required to fly. Many have more than this amount and the figures for the excess time are not available. We can, however, obtain the hazard per year. The table follows:

| Reserves, Naval Aviators, Navy | No. | Average Age | Average Hours per pilot per year | Deaths | Rate per 1,000 |
|--------------------------------------|-----|----------------|---|--------|-------------------|
| 1928 | 200 | | 45 | 0 | 0 |
| 1929 | 280 | | 45 | 3 | 11 |
| 1930 | 231 | | 45 | 3 | 13 |
| 1931 | 231 | | 45 | 3 | 13 |
| 1932 | 287 | | 45 | 2 | 7 |
| Total | | | | | 9 |

| Reserves, Naval Aviators, Marine Corps | No. | Average Age | Average Hours per pilot per year | Deaths | Rate per 1,000 |
|--|-----|----------------|---|--------|-------------------|
| 1928 | 10 | | 45 | 0 | 0 |
| 1929 | 10 | | 45 | 0 | 0 |
| 1930 | 4 | | 45 | 0 | 0 |
| 1931 | 39 | | 45 | 1 | 25 |
| 1932 | 49 | | 45 | 0 | 0 |
| Total | | | | | 5 |

The extra annual hazard involved in the Naval Reserve has been \$9.00 per \$1,000 per year, and that of the Marine Corps Reserve \$5.00 per \$1,000 per year. These figures, however, do not offer any sound basis for underwriting as many of these pilots do civilian flying, in addition to the fact, already noted, that some exceed the 45 hours per year minimum, as reservists.

NOTATIONS

There are a number of items that should be noted, inasmuch as they might result in insurance rated either higher or lower than the average, in individual cases. They will not however affect these averages as outlined.

1. The indication is that while the worst pilots are much worse than the average, the best pilots are only a little better than the average.

2. It seems probable that persons making flights as passengers incur the same extra mortality for the time that they are in the plane that the pilot does, and that their mortality hazard must be rated accordingly. However the comparative extra hazard in relation to normal will not be as great. This is due to two causes.

a. The pilots have been considered as selected risks. The passengers may be non selected risks with a higher normal mortality.

b. The age of the passenger may be a great deal more than the pilot, with a correspondingly higher normal mortality. As an example: A Marine Corps pilot with normal mortality of 3.01 at age 31 incurs 480 times the hazard in an hour in the air that he would have incurred in that hour on the ground. A general officer, age 60, riding as passenger, with a normal mortality of 26.68 per 1,000, per year, incurs a lesser hazard in the ratio of 3.01 to 26.68. The chances, therefore, that he will be a fatality in a given hour's flight could only be approximately 1/9 of 480, or 53.3 times as great as if he had stayed on the ground, at the highest possible ratio.

This figure is still, probably, excessive, for the following reasons:

Passenger hazard may be figured on the above basis in scheduled commercial operations, due to the fact that additional pilots flying in the plane at the time of a fatal accident, have been considered as passengers for statistical purposes. This is desirable if we are to arrive at any figure for passenger hazard. The

* Includes one killed in civilian airplane.

Navy, however, has not kept their records from this standpoint. The result is that a given number of pilot fatalities does not necessarily mean an equal number of crashes where the pilot was killed. Passenger statistics based on the assumption of equal risk with the pilot will, therefore, be excessive in practice, where Naval passengers are involved.

3. Long flying experience, and the holding of a position requiring little annual flying seem to have a favorable effect on the mortality. The former tentative conclusion that when a pilot flies infrequently his mortality rate per hour is increased so greatly by his not keeping in practice as to more than offset the small number of hours flown, does not seem to have been correct in the case of pilots of long experience.

4. Most pilots go through a stage when overconfidence tempts them to do rash things beyond their capabilities. That, however, is one of the risks of flying, to be averaged in with the others, except as it affects the underwriting of an individual risk who may, or may not, have passed through this stage.

5. There have been in the past, two theories held by most pilots in regard to the underwriting of insurance for aviators. They are:

a. That the extra mortality charge required by all insurance companies in underwriting aviation risks has been based on lack of practical knowledge of aeronautics, and a fear of unknown risks.

b. That any unfavorable mortality has been caused by a small group of irresponsible pilots, and that a refusal to underwrite this class would result in an elimination of the hazard.

Both conclusions are without foundation in fact. Conclusion "a" is merely based on the same lack of knowledge on the part of pilots, regarding the insurance business, which these same pilots have been attributing to the insurance business in its relations with aeronautics. Conclusion "b" generally seems to have been based on hindsight, rather than foresight.

6. The separate figures on pilots holding lighter than air ratings only seem to be too small to have any definite meaning.

7. Insurance companies should consider that, in the case of service pilots, war would materially increase

the annual flying time, thus increasing the annual aviation hazard. This does not take into consideration the combat hazard, common to aviation and line troops alike, as only the hazard of flight is under consideration at the present time.

CONCLUSIONS

(All conclusions relate to established facts only. No attempt has been made to attribute causes.)

1. Flying under the best conditions is considerably more hazardous than normal ground occupations.

2. Scheduled commercial piloting has been approximately 8 1/3 times more hazardous than normal ground occupations, on a yearly basis and 83 times more hazardous on an hourly basis.

3. Naval piloting has been approximately half as hazardous as scheduled commercial piloting on an annual basis and twice as hazardous on an hourly basis.

4. (a) Marine Corps piloting on an annual basis has been approximately 50% more hazardous than scheduled commercial piloting and approximately 3 times more hazardous than Naval piloting.

(b) Marine Corps piloting on an hourly basis has been approximately a trifle less than 6 times more hazardous than scheduled commercial piloting and approximately 2 3/4 times more hazardous than Naval Piloting.

SOURCES

Report of the Committee on Aviation Statistics of the Actuarial Society of America, August, 1930.

Third report of the committee on Aviation of the Actuarial Society of America, May, 1931.

Fourth report of the Committee on Aviation of the Actuarial Society of America, September, 1932.

Statistics furnished the writer by the Department of Commerce, Aeronautics Branch, under date of May 26, 1933.

Statistics furnished the writer by the Navy Department, Bureau of Aeronautics under date of July 10, 1933.

Research work conducted by the writer, based on 10 years of simultaneous experience as an active airplane pilot and insurance underwriter, all conclusions having been checked by actuarial authorities.

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The Waziristan Campaign, 1919-1920, 1923

BY COLONEL WILLIAM P. UPSHUR, U.S.M.C.

■ This paper for the most part, is merely a compilation from British sources concerning a modern small war. Since it occurred, there has been an improvement in weapons, particularly aircraft, and it may be noted that had the British been equipped with the Thompson Submachine Gun, they would have found it to be a most useful and powerful weapon.

Operations were on a considerably larger scale than those normally undertaken by Marine Corps Expeditionary Forces, and the opposition was much more formidable than are normally encountered in Marine Corps operations.

Waziristan is a mountainous country lying on the north-west frontier of India. On all sides, except to the east, the country is framed by barren, inhospitable, mountainous country and its interior is of a similar nature. The area approximates very roughly, a lozenge-shaped parallelogram, 160 miles long and 60 miles wide. Its long axis is from north-east to south-west.

The climate is normally unpleasant at all seasons. In the foothills and lower valleys the temperature sometimes rises above 120 degrees Fahrenheit. The winter is variable and depends on the elevation. Snowfall is frequent and hard spells of frost are experienced. The equinoxes (March and September) are the best seasons. In the summer, in the low lying districts and in the valleys, it is far too hot for military operations. All water has to be "treated" for the prevention of cholera, dysentery and minor ailments.

The general grouping and frequency of villages is variable. All are defended by works and strongly built towers. Many of these villages are in close proximity to large caves, to which the tribesmen have recourse in winter for greater warmth.

The population, in 1919, was estimated to be between 200,000 and 250,000, composed chiefly of four tribes of the Pathan Race. They have been described as unreliable, arrogant, pig-headed, faithless, three-cornered, attractive, jaunty, treacherous and soldierly.

As fighting men, the Wazir and Mahsud may be classed very high. Agile and enduring, they are possessed on their own hillsides, of an astonishing mobility and hardness. Their skill with the rifle is considerable, and is surpassed only by a greater capacity to exploit the slightest weakness shown by their enemy. Disregard of methods of security on the one hand; a too slavish enforcement of routine on the other; and miscalculations of time and space factors, have been repeatedly penalized by these warlike people.

The tribesmen are gifted with untiring patience and vigilance in observing an enemy when the latter is on the move, a characteristic which makes it extremely difficult to outflank or surprise them. They are experts in the attack of detached posts and in the surprise of small parties. This skill may be increased by the employment of ruses closely akin to treachery. Lastly, they possess an even greater faculty than the Boer farmer for posing as peaceful cultivators at one instant, only to reappear the next moment in the

guise of sharpshooters. The total number of fighting men was about 23,000. They had about 11,000 modern rifles and 10,000 older ones. As the latter did not use smokeless powder, they were never employed by day. They had no machine guns, and only two mountain guns, which latter proved to be dismal failures in action. In their first campaign against these people, the British employed 41,800 officers and men, and 37,000 non-combatants.

The uprising of the Wazir tribesmen came as a natural result of the World War and anti British propaganda by the Bolshevik Government at Moscow. The British Indian Army was caught sadly unprepared. Experienced officers and men had been sent to Mesopotamia and Palestine. The troops available were comparatively raw levies with inexperienced officers, and as well can be imagined, the difficulties of the coming operations were tremendously formidable. The initial campaign was successfully terminated in 1920, but in 1923 additional operations were necessary. This time the regular troops were thoroughly efficient and field experienced, and they quickly subdued the warlike mountaineers of the Wazir.

In earlier combats the tribesmen drove home their attacks in spite of the machine guns used against them. This seems to have been due to the inefficiency of the machine gunners.

There was little scope for the employment of artillery, except on a very modest scale. Due to the roadless, mountainous country, only a few guns of small caliber could be taken on the expedition.

In 1923, the artillery assigned, while not greater than in former mountain expeditions, differed in the important respect that it included mountain howitzers. These were modern pieces of 3.7 inch caliber, using a high explosive shell weighing 20 pounds with a range of 5,900 yards. Field guns were of 2.75 inch caliber, using shrapnel and high explosive shell weighing 12½ pounds, and had a range of 8,000 yards. The gun was provided with full and half charges enabling it to use curved fire. The howitzer was very successful for the following reasons:

(1) The extra power conferred by the heavy projectile made it possible to clear thick scrub impervious to shrapnel, or other cover too resistant to be penetrated by small H. E. shell.

(2) It possessed an all-round field of fire and due to its curved trajectory, it could come into action from any position in the line of march.

(3) It enabled dead ground and deep ravines to be searched that could not be reached by the gun.

The value of the effects obtained with the howitzer may be gaged by the name given it by the tribesmen, "the gun with the eyes," since they could not understand how ground invisible to any hostile observer could be searched by the somewhat deadly and very noisy shell of the howitzer. In the last campaign a section of six-inch howitzers was employed. With its 100 pound shell and 9,000 yard range, it evoked the uttermost consternation among the natives.

Guns were frequently used from the flank, while

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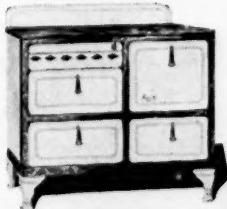
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the howitzers were particularly useful in firing over the heads of the infantry. Guns and howitzers were grouped as are our 37 mm. gun and 3 inch trench mortar. In action, the howitzers drove the enemy from cover and the guns strafed him with shrapnel. Normally, the guns did the ranging by "air bursts" of shrapnel for the howitzer adjustments of fire. The value of artillery in mountain warfare was found to be as great as ever. The killing effect of the howitzer was great, and increased the tribesmen's respect for artillery. *The howitzer is, at present, the nearest approach to the ideal mountain weapon.*

The gun was shown to be unable to replace the machine gun and Lewis gun, but its moral support in advancing the infantry attack was exceedingly great.

The Lewis gun was found of the greatest advantage when used in conjunction with artillery, mainly to stop short range sniping and sudden rushes of swordsmen. This was particularly true in withdrawals. The use of Thompson sub-machine guns under similar conditions would have been even more effective had the British been provided with them.

Airplanes were used in conjunction with the guns, but only with moderate success except for registration of destructive, deliberate fire on stationary targets. During the campaign artillery was used on special tasks as follows:

(1) For the protection of camps to keep down sniping and to support outlying pickets.

(2) For the destruction of villages and frontier towers.

(3) For the defense of fixed posts.

The relative value of both artillery and machine guns was infinitely greater on the frontier than in Europe.

The following is noted with regard to defensive means and other armament:

Barbed wire was used on a very large scale for strengthening fortified posts and pickets.

Machine guns were not used at all until the fall of 1920, and there was little opportunity to test them.

The Lewis gun was issued to all battalions, but due to its poor handling was not properly tried out.

Neither gas nor tanks were used.

Radio found only a limited scope, and was not satisfactory, except for work between permanent stations.

Stokes mortars were issued only to fixed posts and to cavalry, but there is no report on their employment.

The useful employment of aircraft in mountain warfare demands the following:

(1) Machines must be handy and of high performance, possessing a considerable ceiling with a good reserve power.

(2) Air squadrons must possess a generous reserve of machines and spare parts, probably about 100%.

(3) Ground troops must have a clear perception of what the airman can, or can not do, under all vicissitudes of active service.

High temperatures created bad air conditions extending several thousand feet above the ground and made flying hazardous. In the mountains there was an absence of good landing fields.

Once an expedition was launched there was little scope for the strategic employment of aircraft, other than distant bombing raids.

In reconnaissance, the sphere of utility of aircraft was relatively less against irregulars than in Europe. The enemy forces were numerically insignificant. They took no regular formation and were expert in taking cover. There was no hostile anti-aircraft defense in Waziristan, but low flying airplanes were by no means immune. Pathan marksmanship was good against an airplane flying below 2,500 feet. Three machines were shot down by Mahsud rifle fire at Ahnai Tangi, and bullet holes were constantly found in airplanes returning from low flying missions.

In bombing attacks surprise is all important, but the custom of the frontier was to give warning of any impending aerial attack of this nature in order that women and children might be put in a place of safety. By such action surprise was lost. To insure systematic bombardment, the country was divided into three areas, each of which was subject to attack by one of the three available squadrons. In 1919, bombing squadrons went out in force, but in 1923 one machine flew continuously over each area daily.

As a result of the early attacks, the natives took to their caves, already referred to. For this reason the bombardment soon began to prove of little effect. Aircraft thereupon diverted their attention to herds of sheep and cattle, which were subjected both to bombing and machine gun fire. This caused the natives to divide their herds into small flocks to decrease the size of the targets, an expedient which undoubtedly tended to immobilize many ablebodied men. In this respect the attacks were successful, but it was evident that the tribesmen could not be subdued by this means.

Villages resisted all but heavy bombs. The 230 pound bomb alone was adequate to wreck a Mahsud house. The 112 pound bomb often did not render one unsafe for habitation.

The cooperation of airplanes with troops in action normally proved of great value, but sometimes it was difficult for pilots to locate the combatants. However, the mere presence of a plane greatly encouraged the infantry, and the dropping of a few bombs, even when the target was poor, or none was in sight, further increased the morale of the ground troops. In one instance, two airplanes which had expended their bombs greatly aided the situation by making frequent dives toward the enemy, thus pinning him to the ground and stopping his advance. In 1923, this maneuver became a standard practice for aircraft supporting infantry.

It was found very difficult to determine where ground troops required assistance. Sometimes in a flight of six or eight planes flying above an engagement in full progress, only one or two were able to see the combatants at all, let alone being able to tell where help was wanted. Panels were of no great value. A scheme was devised for laying out a number of strips on the ground so as to form an arrow pointing toward the enemy, with a system of bars across the shaft which indicated the distance from that spot to the point where resistance might be expected or aerial assistance was desired. Due to the difficulty of telling friend from foe, friendly troops were bombed on two occasions.

The airplane was found to be a most valuable complement to the rifle, the gun and the howitzer. The airman was able to attack the enemy in positions from

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which he could not be dislodged by rifle fire, or from behind cover where howitzer fire could not be observed.

Where time permitted, photographic reconnaissance was most valuable. Vertical photographs were most usual, but these were supplemented by obliques of the more important tactical features. It was not feasible to obtain any photographs during an engagement that could be of use before its completion.

In the mountainous country artillery observation posts were numerous and aerial assistance was not often required. Airplanes were freely used to drop notices and copies of Government terms in enemy camps and villages. Dispatches and spare parts of guns, urgently needed, were frequently transported by airplane. Commanders and staff officers were taken up either for reconnaissance or for rapid conveyance from one spot to another.

"Lighter than air" craft were suggested for carrying supplies; the ability of the transport airplane for doing this was not recognized at the time.

A trained officer of the air force at headquarters on liaison duty was found of great advantage. He alone could explain the tactical difficulties and requirements of the air service; chose landing fields, and issue orders most easily understood by pilots, or communicated most rapidly to them.

Except for experience gained from the employment of aircraft and modern artillery in frontier warfare, the campaign of 1919-1920 in Waziristan offered very few lessons that are really new.

It was again demonstrated that ample time must be allowed to bring operations to a successful and definite conclusion, and that it is never quite possible to forecast with certainty the probably line of action that will be taken by irregulars. The advance of the British forces in Waziristan during the first six weeks of the campaign was slow beyond all expectations. The plan contemplated an advance by stages of from 10 to 12 miles each. At the end of each stage a pause was to be made long enough for the concentration of 10 days' stores and supplies. As a matter of fact, the first two stages were 2 and 4 miles respectively, and three weeks elapsed before the column began the third stage. This was due to the inexperience of the troops and the unexpectedly fierce fighting spirit of the Mahsuds. Not since Abu Klea in 1885, had the British been required to face such ferocious attacks as were delivered against them at Mandanna Ridge, Tarakai Hill, and on "Flathead Left." These were not blind fanatical rushes, but were skillfully delivered and admirably supported by well posted marksmen, cunningly concealed behind bullet proof cover. The British had neither time or opportunity to adopt a close formation for defense, and the fire discipline was inadequate to meet the crisis.

It was found absolutely necessary for all combat troops to have a very high standard of individual training. Self confidence and skill at arms are the first essentials on which any sound method of training for frontier fighting should be based.

The campaign illustrated the following deficiencies of the regular troops:

- (1) Inability properly to use cover for firing, or to fire up or down hill.
- (2) Ignorance of the use of the bayonet.
- (3) Faulty fire discipline, waste of ammunition, wild firing.
- (4) Inability to construct adequate cover or to take cover.

The following lessons were taught as the campaign progressed:

- (1) Deliberate aimed fire is necessary.
- (2) Proper employment of musketry methods for control and direction of fire is required.
- (3) Indiscriminate and wild firing by day or night tremendously encouraged the enemy, and the expenditure of ammunition was in excess of all calculations.
- (4) The necessity of avoiding routine methods should be recognized. It required frequent changes in the outpost system, number and position of picquets and time of posting. The same rule applied to the protection of convoys.
- (5) Surprise remained the most potent weapon in attack. This resulted in numerous night marches, but they rarely exceeded 2 miles in length.
- (6) Retirements still remained a difficult operation and careful preparation to cover withdrawal was essential. Artillery must be warned in advance to protect the movement, and airplane support is essential.
- (7) Rear guards were always exposed to be cut off by enemy infiltration round its flanks.

(8) Breaking off an action when troops were being closely followed, complicated the removal of the wounded.

(9) The use of permanent piquet posts along the line of communications was justified—was more efficient and reduced the strength of the force required for this duty. These piquet posts were located on commanding ground, about 875 yards apart, were strengthened by all available means, and were surrounded with strong barbed wire entanglements. The works were cunningly concealed and camouflaged, and were wired overhead to guard against grenades.

(10) Enemy activities along the line of communications was met by an active defense, ambuscades, sweeping patrols, and "booby traps." These operations were assisted by the field force in cooperation with the picquets.

It may be noted from the foregoing, that regular American troops have, to a marked degree, some of the characteristics found wanting in the British during this campaign, notably, skill with the rifle, automatic rifle, and machine gun. As far as the Marine Corps is concerned, it lacks musketry training, skill with the bayonet, and perhaps initially, skill in taking cover. However, confidence in their superior fighting ability over any perspective opponent, is the characteristic of American troops. Proper leadership, with adequate training, without doubt would produce the desired results in actual campaign.

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Some Little Known Phases of Marine Corps Aviation

BY FIRST LIEUTENANT IVAN W. MILLER, U.S.M.C.

■ All machines and, of late years, an increasing number of our civil population have become very conscious of the daily work and exhibition flights of the aviation section of our corps. However it is very doubtful if they have an appreciation of the long hours of preparation by the personnel of the ground crews and shops that have made these operations possible. No airplane or engine has yet been built which does not require a highly specialized care to maintain it in proper condition for flight, and it might be surprising to many members of the Marine Corps to learn of the complexity and cost of the maintenance and overhaul work which is necessary to maintain the high standard of reliability which characterizes Marine Corps Aviation.

At Quantico and at the Naval Air Station, San Diego, the overhaul is accomplished by service squadrons which average approximately two hundred and one hundred men respectively. In Haiti about one-third of the personnel of the aviation unit is engaged in this work. The shops at all three of these stations are as complete as allowances permit. In Haiti and in Quantico, in addition to the purely aeronautical phases of the work, all station construction and repair is taken care of by this personnel. This includes plumbing and electric wiring, and in Quantico, the maintenance of a complicated and antiquated heating system for the field.

All airplanes, engines and aeronautical supplies for Marine Corps aviation are procured from the Bureau of Aeronautics of the Navy Department. Except in special cases marine aviation units overhaul their own airplanes and engines. The exceptions are the Marine Squadrons attached to the carriers, Lexington and Saratoga, and in cases of the larger types of planes which are usually sent to the Naval Aircraft Factory at Philadelphia for overhaul. The squadrons on the carriers have the same overhaul system as the Navy uses, that is, the operating squadrons do not overhaul but rely on the Navy repair depots for airplanes and engines. This system is not advantageous to the usual Marine Corps unit because it is necessary to do the overhaul on expeditions with our own personnel and the Navy system would not provide a personnel skilled in such work.

All aircraft and engines are given major overhauls at prescribed intervals in accordance with a schedule of operating time. In this connection it might be informative to state that as careful a log is kept of the airplane and engine operating time as is kept of the operations of any other Naval vessel. The operating time of engines and airplanes do not agree because an engine is given credit for both ground and air time while the aircraft is only given credit for time in the air. Unless unforeseen occasions arise engines are given a major overhaul after three hundred hours of use. The schedule for overhaul of the airplane structure varies with the type. It is mandatory that pursuit airplanes be overhauled after three hundred hours; observation planes, four hundred hours; amphibians, three hundred hours and transports, one thousand

hours. There is a limitation upon the amount of money which can be expended upon an airplane during each year of its useful life, which is usually five or six years. This is to preclude spending an excessive amount upon an old or obsolescent type.

When the airplane or engine is due for an overhaul it is transferred from the operating squadron to the service squadron and is sent to the airplane overhaul or engine shop. The airplane is completely disassembled and all components are carefully inspected. All parts that can not be repaired are replaced with satisfactory ones. When it is realized that the usual observation airplane is composed of several thousand parts which must be removed and replaced it can be seen that it is a relatively slow and painstaking job. The fabric is removed from the airfoils and their structures are checked for alignment. After a coating of the proper protecting medium they are sent to the fabric shops and dope shops for covering and finishing. In the meantime the fuel and lubricating systems have been removed from the fuselage and repairs begun. The electrical system and the instruments are sent to the accessories shop for repair and test. The control system, i. e., the control stick, etc., is disassembled and inspected. When the bare fuselage and landing gear are reached they are cleaned and inspected for soundness and misalignment. After they are refinished the airplane is assembled and the engine installed. After rigging, which is the adjustment of the struts and brace wires to provide the proper flying characteristics, it is flight tested and turned over to the operating squadrons.

The engine overhaul follows a similar procedure to the above. Engines are completely torn down and all parts examined for wear or signs of incipient failure. The fits and clearances are checked with the proper gauges and any worn parts are discarded. The engine is then assembled and, after the ignition and carburetion systems are received from their repair department and are installed, the engine is ready for the test run. The engine is placed upon a test stand and is run for about ten hours to give all parts a good running fit and to secure the needed adjustments. It is then returned to storage or it may be issued for installation.

An overhaul crew of two skilled men can overhaul an engine in about two weeks time, while it takes a crew of five men three or four weeks to accomplish the major overhaul of an airplane. This does not include work done in the special shops such as metalsmith, etc. In all phases of the overhaul each phase is performed by a mechanic specializing in that particular work. The majority of the mechanics have received their whole training in this work in the Marine Corps.

The usual shops on a station are airplane overhaul, engine overhaul, machine, paint, carpenter, metalsmith (including welding and blacksmith), wire-working, instrument and ignition, propeller and fabric shops. We are fortunate in possessing in the Marine Corps so many excellent senior non-commissioned officers who are highly trained technical men and

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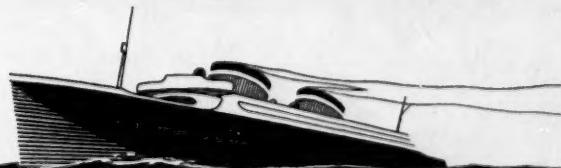
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most of whom have been in the Marine Corps for over twelve years. They also act as instructors for the younger men. In comparison with the men of the Navy who are similarly qualified they are not given as high ratings or as much pay and it is a compliment to the morale of the Marine Corps that they stay with us. Among civilian firms the reputation of a mechanic from Marine Corps Aviation is a very enviable one, and when a Marine aviator comes in contact with a commercial aviation organization he usually finds an ex-Marine.

In addition to the shops concerned with aeronautical activities there are other shops such as the carpenter, plumbing and electrical shops which provide for the upkeep of the station. Naturally from such chances for experience a recruit is offered many opportunities to become grounded in a useful trade and he gains a back-ground which makes him a useful citizen upon the expiration of his enlistment.

Now a few words about the cost of all the work enumerated in the above. Perhaps this should have come first as economy is a much sought quality these days. In the first place the Government has a considerable investment in the airplane and engine. A military airplane usually cost from \$15,000 to \$60,000 and the engine costs vary from \$2,000 to \$7,000. An airplane whose initial cost, less engine, is \$15,000 and whose useful life is considered to be six years, usually has a limitation of about \$12,000 which can be spent upon it during the first or second years and which progressively decreases to about \$3,000 for the last year of its service. Enlisted labor overhead is estimated at \$1.50 per hour and the remainder of the over-

haul cost is material and spare parts. Much the same system of limitations apply to engine overhaul. One of the standard engines now in use has an initial cost of \$5,500 and the cost of overhaul of that engine must be limited to \$2,460. If the cost is estimated more than the latter figure it is considered more economical to survey the engine and retain the useful parts as spares. These engines will use twenty-five to seventy gallons of fuel per hour. But not counting the fuel, oil, etc., if an airplane be flown for its allotted period of three hundred hours and the cost of overhaul of that airplane and engine be limited to \$12,000 plus \$2,460 it does not require much of a mathematician to figure that the average cost of operation of that aircraft was in the neighborhood of fifty dollars per flying hour. The above is not mentioned with the idea of impressing the reader with the expense of aircraft operation, but rather to bring to his mind a realization of the responsibility borne by the repair and overhaul units.

Perhaps it might be puzzling in the face of the cost of operating military airplanes as to how a commercial airplane company can make money. It might be inferred that either a military organization operates uneconomically or that the commercial outfit loses money. Perhaps the latter might be true without a government mail contract but nevertheless, it must be remembered that military aircraft are designed for a specific strenuous service and more elaborate equipment is needed. Also due to less rigorous use on a scheduled airline the overhead of the commercial line is greatly reduced as the period between overhauls is lengthened.



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BY ARTHUR LA MOTTE

■ Explosives may be divided into High Explosives or detonating explosives, of which T.N.T. and dynamites are types, and deflagrating—sometimes unhappily called “Low Explosives” of which black powder, gunpowder, smokeless powder are types. Black powder is used in large quantities for blasting and in smaller quantities for guns; smokeless powders only as propellents.

There are a great many kinds of dynamite, the duPont Company having over 254 formulas in order to provide for every kind of work for which high explosives are required. These various dynamites differ from each other in density, water resistance, plasticity, sensitiveness, velocity and fumes. The low density dynamites are used in quarrying the softer types of stone, in mining the softer ores and other minerals, and in stump blasting; the high density dynamites for quarrying hard rock, for mining hard ore, for submarine blasting and for tunnel driving; the quick, sensitive dynamites for propagation ditch blasting; and the slower acting dynamites for moving porous material like earth, sand and soft rock. For blasting in the open air, fumes are of little consequence, but for underground blasting, and especially in tunnel headings, it is of utmost importance that the explosive should give off a minimum of poisonous fumes.

One class of dynamites used in enormous quantities in the United States for coal mining is known as permissible explosives, by which is meant that these explosives conform to certain specifications of the Bureau of Mines for use in gaseous and dusty coal mines. Generally speaking, permissible explosives are characterized by a low density and a relatively cool and short flame. Permissibles are also occasionally used in shaft sinking and in forestry work where the possibility of encountering explosive gases or inflammable material is present.

The characteristic explosive ingredient of all these industrial high explosives is nitroglycerin, or ammonium nitrate or nitrocellulose gelatinized with nitroglycerin, or some combination of two or more of these three. In Europe a chlorate of potash explosive known as Cheddite is used to a limited extent but this has never found favor in the United States as no chlorate of potash explosive has ever passed the friction test for safety at the Bureau of Mines.

The military high explosives, such as T.N.T., picric acid and Explosive D, which are mostly used for shell bursting charges and demolition blocks, have great disruptive power but from an industrial standpoint they are of no particular interest except that they are much more insensitive to shock than the industrial high explosives. Any explosive containing nitroglycerin will detonate on impact of a rifle bullet whereas the military high explosives will not. T.N.T. has a rather high velocity of detonation, being about comparable with a 50% straight nitroglycerin dynamite in that respect, and with a 45% straight nitroglycerin dynamite in strength. Picric acid is somewhat more sensitive than T.N.T. but is more disagreeable to work with owing to its poisonous qualities and to the fact that it stains everything with which

it comes in contact. Moreover in contact with certain metals in the presence of small amounts of moisture, it is likely to form very sensitive salts.

Returning now to the second class of industrial explosives, black powder, this is made in two types. One consists of nitrate of potash, charcoal and sulphur and is known as saltpetre powder, or in the trade, as “A” Blasting Powder. This is used principally in the manufacture of fireworks and safety fuse and for blasting dimension stone. The other type of black powder, known to the trade as “B” Blasting Powder, consists of nitrate of soda, charcoal and sulphur and is somewhat more deliquescent than the “A” Blasting Powder, also considerably cheaper. This is used for practically every other purpose for which a black powder is required, principally coal mining, although some quantities are used for blasting earth and soft rock. In recent years black powder of the “B” type is being put up exclusively for coal mining in a new form which has advantages over granular powder in execution, safety and economy. It is compressed into pellets having an axial perforation and these are wrapped end to end in paper to form cartridges.

Black powder of whatever kind is ignited or fired by a spark or flame, either from an electric squib or from the end spit of fuse, and occasionally, in large charges, from the flame of a cartridge of dynamite.

To set off high explosives, on the other hand, requires an intermediate agent, known as a detonator, which may be either the ordinary blasting cap, which is in turn fired by fuse, or an electric blasting cap fired by an electric current. These caps usually contain a dense, quick explosive of the type of fulminate of mercury which detonate from the end spit of the fuse or from the heated bridge wire in the electric blasting cap. T.N.T., picric acid, tetryl and lead azide are also used as base charges for detonators.

Electric squibs for firing or igniting black powder are usually assembled with a charge of black powder in the base, which is ignited by a platinum bridge wire imbedded in a sensitive material somewhat similar to a match head composition.

Safety fuse for use with blasting caps consists of a powder core wrapped with successive threads of jute or hemp, sometimes taped, and waterproofed with compositions of the asphalt variety. It is made in two burning speeds, one which burns a foot in 40 seconds and the other which burns a foot in 32 seconds. These safety fuses are remarkably regular in their burning speed, most of them are fairly waterproof, and I might say almost foolproof.

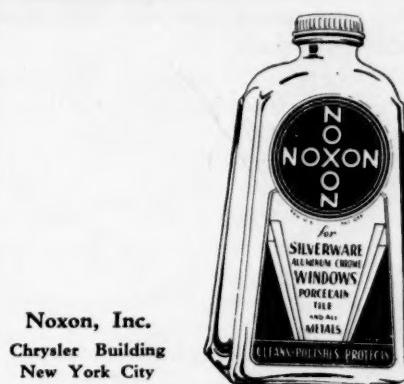
Another type of fuse which is made only for war purposes is known as instantaneous fuse. It is of larger diameter than safety fuse—so large in fact that it will not fit into a blasting cap—and is countered with red and white threads in such a way as to present an entirely different appearance from safety fuse. These precautions are taken because, naturally, it would be fatal for a miner to use instantaneous fuse when he thought

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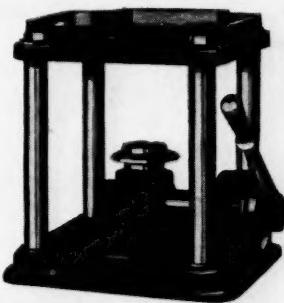
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he had safety fuse. Instantaneous fuse burns at the rate of about 100 feet per second.

While safety fuse is occasionally accused of flashing or burning much faster than its advertised rate, investigation generally proves that this impression was given by the fact that the blaster, having lighted the fuse but not being sure that it was lighted, went back to relight it about the time it had burned down to the charge.

Another type of what might be called fuse is known as Cordeau Detonant, or more often just cordeau. This consists of a lead tube about $\frac{1}{4}$ inch in diameter filled with tightly packed powdered T.N.T. Cordeau explodes at the rate of about 17,500 feet per second and is used for firing large charges of explosives in deep well drill holes of large diameter. It is especially advantageous where the stratification of the rock requires the dynamite charge to be broken in one or more places and the space between the explosive filled with sand in order to prevent too large a charge behind a weak stratum of rock or possibly a mud seam in the rock. Nearly all large quarry blasts in holes over 40 feet deep are fired by means of cordeau, the line of cordeau in each hole being connected with a trunk line laid horizontally on the surface which, in turn, is fired with a blasting cap or electric blasting cap at one or both ends.

There are four general methods of using high explosives for blasting. The first is in relatively small bore holes, an inch or two in diameter drilled from a foot to possibly 10 feet deep in rock or coal. The second is in sprung holes where a small charge is fired untamped at the bottom of the hole to enlarge it and produce a chamber in which a larger charge can be placed for the final blast. This is the method largely used in road construction, especially in holes drilled with drills having a diameter of less than 2 inches, in contradistinction from well drill holes which, having a diameter of from 6 to 8 inches, do not as a rule require enlarging at the base. The third method consists of driving a tunnel into the face of the rock, usually near the quarryfloor, this tunnel being about 3 feet wide and 4 feet high and extending into the rock 40 to 50 feet, from which point it is teed off in both directions, and then loading in these wing chambers large charges of dynamite for bringing down several thousand—sometimes several hundred thousand—tons of rock in one blast. This is known as tunnel blasting or coyote hole blasting. The fourth method is usually called mudcapping. This consists of placing a charge of explosive, usually a quick acting one, on the material to be blasted and covering it with a quantity of mud, sand or other inert material and firing it with little or no confinement. This method is used for breaking large spalls of rock in quarries, usually only when there is not time to drill them as it takes about ten times as much explosive to break a rock in this way as would be required were the rock drilled and loaded in the orthodox manner.

Iron castings are usually broken up by the mudcap method as it costs more to drill them than to use the additional quantity of explosive. Boilers, retorts and similar objects are frequently broken up by a modification of the mudcap method, namely, to fill the vessel with water and hang a few cartridges of dynamite in the middle and fire the dynamite electrically.

Another contact method of blasting is employed for cutting off wooden piles under water, in which a necklace of high strength, high velocity dynamite is strung around

the pile, lowered to the desired level ad fired. A modification of this method is used for blowing a trench across a river in which to lay an oil or gas pipe line, where bunches of dynamite are strung on a cable making a continuous charge, possibly 6 inches in diameter, across the entire river and are fired by propagation from one end.

Inserting the detonating agent into the dynamite cartridge is known as priming and the proper method to accomplish this involves fastening the detonator in the position which will produce the greatest effect on the dynamite and which will prevent the detonator from being withdrawn from the dynamite accidentally. Furthermore if cap and fuse are used in wet work, priming also involves protecting the detonator at its junction with the fuse with waterproofing material. By far the greatest effect of a detonator is exerted from its closed end, as the shock from the other end is cushioned either by the fuse in an ordinary blasting cap, or by the waterproofing material in an electric blasting cap. Therefore, for best results, the detonator should, in blasters' parlance, be pointed with its business end toward the bulk of the charge. Generally, either the detonator or the fuse is tied to the cartridge with a string or in priming with an electric detonator, the wires may be drawn through the cartridge and looped around it so that they will resist a sharp tug without pulling the capsule out of the dynamite.

In inserting the safety fuse into the blasting cap certain precautions should be observed. About an inch of the end of the fuse to be inserted should be cut off square with a sharp knife or a tool made for this purpose. Pruning shears are very effective. This freshly cut end of fuse is then inserted into the cap until it touches the composition, next the cap is crimped on the fuse with another special tool made for the purpose to prevent the fuse from being pulled out of the cap. The junction between the fuse and cap should then be sealed with some waterproofing compound which does not contain oil. Explosives manufacturers and fuse manufacturers make a special material for this purpose, usually called Cap Sealing Compound. When gelatin dynamite is to be used it is usually not necessary to waterproof the junction between the cap and fuse as the gelatin is pretty waterproof in itself so that, unless the charge is to be left under considerable water pressure for several days, no further precaution is necessary.

There is quite a trick in lighting safety fuse. It looks like the easiest thing in the world but to the novice it presents some difficulties. If a box of safety matches is at hand, probably the quickest and surest way is to slit the fuse down to the powder train for about half an inch at the end to be lighted, place the head of the safety match in this powder and draw the composition on the side of the box sharply across the head of the safety match. This requires a little practice to accomplish efficiently. If "strike-any-where" matches are to be used, the head of the match should be placed in the slit end of the fuse close against the powder train while the head is still flaming.

Several devices have been marketed for lighting fuse. From the standpoint of lighting a considerable number of fuses in rapid succession, probably the most effective is one known as the Hot Wire Lighter, which consists of a steel wire about a foot long, two-thirds of its length being covered with a powder composition which burns

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slowly, somewhat like a toy sparkler. This, held against the freshly cut end of the fuse, will invariably light it. Another device consists of a pasteboard tube of a diameter into which the fuse fits snugly, having a safety match composition on the inside and a wire protruding from the end opposite to that in which the fuse is inserted. Pulling this wire ignites the match composition and lights the fuse. This is intended for lighting one fuse at a time.

Still another fuse lighting device, which is known as the Lead Spitter, consists of a small lead tube filled with a black powder composition. This spits out a vigorous flame, but has the disadvantage of spilling molten lead as it burns. Either the Hot Wire Lighter or 12 inches of the Lead Spitter in the hands of an expert operator will enable him to light a dozen or more fuses at the same time, provided they are within reach.

When electric blasting caps are used, they are connected in a circuit, usually a series circuit, and this is fired by electric current supplied usually by a blasting machine. To fire a single electric blasting cap requires about .4 of an ampere at a voltage sufficient to overcome the resistance of the cap, which averages about $1\frac{1}{2}$ ohms. However, to fire a series of electric blasting caps with the assurance that they will go simultaneously, it is necessary to impress $1\frac{1}{2}$ amperes on the line and sufficient voltage to overcome the total resistance of the electric blasting caps and the leading wire. For the reason that the series connection is much the easiest to make, it has been standard for a number of years in the United States with our present type of electric blasting caps. Therefore, blasting machines, which are in reality series or shunt wound dynamos, are designed for impressing on the firing line a relatively small volume of current at a rather high voltage.

While high voltage and low amperage are theoretically correct, practical conditions leading to electric leakage through the material to be blasted, have made it necessary for us to design blasting machines of a considerably greater volume of current than was once thought necessary. The development of such machines has in turn led to the firing of what is known as the graded parallel series connection, which consists of say five series of electric blasting caps, these series connected in parallel, and beginning with say 30 caps in the first series, 40 in the second, 50 in the third, and so on, up to the capacity of the blasting machine. In some cases a machine rated at only 100 caps has been able to shoot 400 or 500 connected in this manner. This, of course, is applicable only to the largest and most powerful of blasting machines.

For firing a small number of caps at a time the pocket blasting machines are used which, rated at 10 caps in series, will usually shoot a considerably greater number. These machines have a low amperage, however, and the caps must be connected in straight series.

The industrial uses of explosives listed in order of

volume consumed are coal mining, metal mining, quarrying, road construction, including fill settlement work, and what is termed agricultural work, meaning such work as blasting for drainage and blasting stumps and boulders for clearing land. Submarine blasting for deepening channels, while very important, consumes a relatively volume of explosives. A still smaller quantity of dynamite is used for what we term freak blasting, such as blowing down bridges, felling chimneys, tearing out concrete foundations, blowing down buildings, and the like. We are called upon to do this kind of work from time to time, sometimes for emergency purposes, at other times because it is the most efficient and the cheapest method of securing the desired results.

The old bridge over the Susquehanna at Conowingo was blown down preparatory to building the dam but its destruction was taken advantage of by a moving picture concern to stage the culmination of a romance.

Felling chimneys had become the specialty of one of our field men who developed an uncanny technique in this. He could drive a stake in the ground at the point where the chimney was desired to fall, and invariably drop the chimney upon that stake.

Blowing up foundations generally involves the use of extremely small charges of high explosives, a large number of bore holes, and very great care as we are generally cautioned that there is valuable machinery around and that we must not break any windows.

Of course blasting down a house in the country presents no particular difficulty, especially if the house has a cellar as we can then blow the foundation walls into the cellar and the house will collapse.

Occasionally we are called upon to blast a ditch for emergency purposes to save a crop or divert a flood. This is done by loading charges of high strength, highly sensitive dynamite in holes spaced not more than 2 feet apart in the line of the required ditch and then firing one of the charges either electrically or by cap and fuse, the explosion of which propagates to all the rest so that a ditch is produced almost instantaneously. In ordinary swamp land half a pound of dynamite to a hole, with holes 18 inches apart, will produce a ditch roughly 3 feet deep and 5 feet across. Ditches as deep as 8 feet, and 30 feet wide, have been blasted by this propagation method successfully, and some of our field men are contemplating blasting ditches 70 feet wide.

Submarine blasting requires the highest possible strength and the greatest possible water resistance in the explosive. Consequently we use either 80 or 90 per cent gelatin and preferably of a type which picks up its full velocity of detonation immediately instead of waiting for 8 or 12 inches to obtain its maximum velocity. Submarine blasting is ticklish work as it calls for drilling, loading and firing without seeing the material that you are working on and it is greatly to the credit of our engineers that it is almost always successfully accomplished.

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Col. Douglas C. McDougal
U.S.M.C.

security in the pursuit of their lawful occupations. He established and developed a school for the training of Nicaraguan Cadets to fit them for commissions in the lower grades of officers of the Guardia Nacional, and thus made it possible to relieve officers of the U. S. Marine Corps from duty as officers in the Guardia Nacional, and materially expedited the complete turn-over of this force to the control of Nicaraguan officers. He commanded and led the widely scattered elements of the Guardia Nacional de Nicaragua in continuous field operations against well armed bandit groups in such an efficient and skillful manner as to insure peace and good order in the larger part of the Republic at the completion of his duties there. By his tact, patience and energy he gained the confidence and support of the large law abiding element of the Nicaraguan citizenship, in the plans of the United States Government for the establishment of a non-partisan national police force, capable of maintaining order in the Republic of Nicaragua without the necessity for support by a Marine Force of Occupation. This made practicable the withdrawal of a large portion of the personnel of the Second Marine Brigade from Nicaragua during his tenure of office as Major General of the Guardia Nacional, thus effecting a large saving in expense to the United States Government and materially advancing the date when the whole Marine Force could be withdrawn without detriment to peace and good order in Nicaragua."

For the President,

CLAUDE A. SWANSON,
Secretary of the Navy.

THE BROWNING MACHINE GUN, CALIBER .22 T1

With a view to effecting great economy in ammunition expenditures in machine gun training, the Marine Corps has delivered 50 Browning machine guns, caliber .30, Model 1917, to Springfield Armory for conversion to the caliber .22 T1 type.

The caliber .22 machine gun was developed as a sub-caliber

machine gun for use in training to parallel training with the Browning machine gun, cal. 30, M 1917. It fires caliber .22 long ammunition, gives results equally as good as M-1 ammunition on the 1000-inch range, affords excellent training, and saves approximately \$26.00 per thousand rounds.

The gun was developed by modifying and adding new components to the Browning machine gun, caliber .30, M 1917. Its rate of fire is approximately 550 rounds per minute.

Description and operation.—The operation of this gun differs from the operation of the caliber .30 gun in that the barrel proper does not recoil.

The barrel is built in two sections, the rifled section being fixed and the chamber section telescopes over the rifled section. The cartridge case is carried in the chamber section. The Barrel Sleeve is threaded on the rifled section of the Barrel and locked with the Barrel Sleeve Lock. The Barrel and the Barrel Sleeve are assembled into the receiver by inserting the barrel in the same manner as the caliber .30 barrel is assembled. The barrel sleeve and the barrel assembly are secured to the gun by the Barrel Nut. The Sub-chamber is assembled to the Barrel Extension with the sub-chamber extending to the rear of the forward inner face of the barrel extension approximately .05" and secured with the Sub-chamber Lock Pin. The Cartridge Belt Extractor is carried by the barrel extension. The extractor used with the caliber .30 gun is not used as an extractor for the caliber .22, but is used as a Cartridge Depressor. The T-slot on the caliber .30 bolt has been removed and two Shell Extractors have been substituted for the T-slot. These shell extractors form a yielding T-slot for the purpose of rigidly holding the caliber .22 cartridge. The strength of the driving spring has been reduced. The caliber .30 bolt has been lightened. The extractor has been modified in order to form it into a cartridge depressor. The cover extractor spring used with the caliber .30 gun has been made lighter by grinding the section which contacts with the cartridge depressor. A clearance has been cut in the cover to clear the depressor. The cover has been modified in the section adjacent to the belt feed slide in order to accommodate the new Feed Pawl. The belt feed slide has been slightly modified to provide clearance for the Feed Pawl. The Feed Pawl is provided with an extension arm to reach the caliber .22 belt. An auxiliary Feed Block has been added to the feedway to accommodate the caliber .22 belt. The Belt Feed Pawl is carried by this member. The receiver and trunnion block are slightly modified to provide a suitable mounting for the feed block and to control the cartridge depressor. An extra cam cut in the extractor feed cam has been made to insure correct feeding even though the full recoil of the bolt has not been made.

To load the gun, the cover should be down and the tang of the belt pushed through the feedway until the cylinder section adjacent to the first cartridge is engaged by the belt feed pawl. The bolt should be withdrawn three times to accomplish loading. The gun is fired in the same manner as the caliber .30 after being loaded. When the trigger is pulled the firing pin is released and the first cartridge fired. The bolt, barrel extension and the sub-chamber recoil the same distance as the caliber .30 gun, and the same functions as to feeding and extraction are performed as with the caliber .30 gun. The main difference found in the caliber .22 mechanism is that the extractor that removes the cartridge from the belt is carried on the barrel extension and the caliber .30 extractor has been modified and serves as a cartridge depressor. It will be noted that the cartridge case is carried by the sub-chamber with the bullet extending in the fixed position of the barrel. The operating energy is obtained by the expansion of the gas at the end of the cartridge case over a much greater area than the bore of the barrel. The gas acting over this increased area reacts against the inside rear wall of the sub-chamber which forces the sub-chamber, barrel extension and the bolt to the rear. The return energy is supplied by the driving spring in the same manner as the caliber .30 gun.

The belt is removed from the feed block by depressing the Belt Feed Pawl and withdrawing the belt to the left.

This machine gun more nearly approaches the performance of the 30 cal. M. G. as it produces about the same recoil and vibration thus permitting the operators to get the training which is not possible with the 22 cal. M. G. without the recoil feature.



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